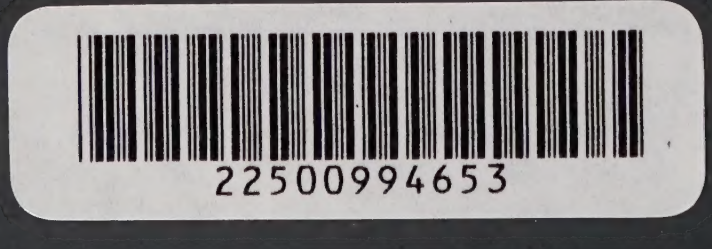
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BZP (Christison)

THE LIFE

OF

SIR ROBERT CHRISTISON, BART.

Yours ever

R. Christison

THE LIFE

OF

SIR ROBERT CHRISTISON, BART.

M.D., D.C.L. Oxon., LL.D. Edin.

PROFESSOR OF MATERIA MEDICA IN THE UNIVERSITY OF EDINBURGH,
PHYSICIAN TO THE QUEEN FOR SCOTLAND, ETC.

WELLCOME INSTITUTE

EDITED BY HIS SONS

IN TWO VOLUMES

VOL. I.—AUTOBIOGRAPHY

WILLIAM BLACKWOOD AND SONS
EDINBURGH AND LONDON
MDCCCLXXXV

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INTRODUCTION.

THE Manuscript from which the First Volume of this publication is formed was found among Sir Robert Christison's papers after his death. It consists of an Autobiography of the first thirty-three years of his life, is written in a clear and beautiful hand, almost without correction or erasure, and entirely free from blot from beginning to end, and is neatly bound in three little volumes by Sir Robert's own hand. We, his sons, were not aware during his lifetime that he was engaged on this work, but from internal evidence it must have been written at intervals between 1870 and 1879, partly from memory, but chiefly from original notes and letters, some of which still exist. The MS. breaks off quite abruptly, without explanation, and we can only conjecture that increasing years had deprived him of the strength or inclination to carry on the account of his life.

No directions were left as to the disposal of the work, but, acting on the advice of several of Sir

Robert's most valued friends, to whose judgment it was submitted, and being strongly urged in particular by the late Principal Sir Alexander Grant, we resolved not to withhold it from the public.

Having determined to go so far, the question arose whether we should attempt some continuation of a life which certainly did not grow less interesting with increasing years. On investigating his papers with this view, we found that unfortunately little original materials exist for the period of about twenty-five years subsequent to that dealt with in the Autobiography. At that time, indeed, Sir Robert had little leisure and less occasion for any correspondence except of a strictly professional kind. But during the last thirty years of his life he maintained a regular correspondence, sometimes by letter, sometimes in the form of continuous journals, with his eldest son and his daughter-in-law in India, and with his second son, who was frequently abroad for limited periods. From these sources, from copies made by himself of his more important letters, and from special notes which he had kept of some remarkable occurrences of his life, it was evident that ample materials could be drawn for the formation of a second volume.

It was resolved, therefore, to continue the Life, and to give it as much as possible the character of an autobiography, by relying almost entirely upon Sir Robert's original letters and documents,—our part as

Editors going little beyond the mere selection and arrangement of the materials. Here a difficulty arose from the variety of Sir Robert's pursuits. It appeared that by following the usual course of writing a continuous narrative from year to year, there was a risk of producing a confused and disjointed result, which might be avoided by treating each division of Sir Robert's life-work separately. The latter course, therefore, was adopted; and it was attended with this further advantage, that we could with greater ease call in the aid of others in describing particular branches of our father's work. Thus we have the great privilege of presenting to our readers a chapter on Sir Robert's work as a physician by Professor Gairdner, and another on his scientific career by Professor T. R. Fraser.

The biography of a physician and man of science must necessarily appeal mainly to medical readers, and to those acquainted with the sciences allied to medicine. Nevertheless, we believe that even the purely professional and scientific parts of the present work may prove interesting to those cultivated members of the general public who are not unwilling to take an occasional side glance at professions and pursuits differing widely from their own; and it would almost appear that Sir Robert had this class of readers in view, from the untechnical and popular style of writing which he has adopted.

A considerable part of both volumes is taken up with the affairs of the Edinburgh University. This was hardly to be avoided in an account of the life of one who was so thoroughly identified with every phase in the history of that University for more than half a century. Neither did it seem desirable to curtail this part of our subject much, as it might be found to have no little historical and practical value to University readers.

Finally, there can hardly fail to be something worthy of study by the general as well as the professional reader in the life of one who attained a position of some prominence in his day, and who won the respect alike of his professional brethren and his fellow-citizens, by the singular unselfishness, high sense of honour, and strict devotion to duty which characterised a career prolonged far beyond the period of activity usually allotted to man.

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AUTOBIOGRAPHY.

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CHILDHOOD AND SCHOOL-DAYS.

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I HAVE not the vanity to think that the incidents of my life, uneventful as it has been to all but myself, can convey either encouragement, or warning, or instruction to those whom I must some day soon leave behind me in this world. But having lately [23d February 1871] entered on the fiftieth year of my professorship, and having just finished my University Lectures for the season with a week of fatiguing work, I find I require relaxation from routine toil in my professorial and professional duties, as well as from a very unusual amount of the turmoil of public strife in this turbulent city during the last six months. Could I as easily reach the foot of a

Highland mountain, or the shore of a Highland loch, as I can betake myself to this sheet of paper, climbing the mountain and rowing on the loch would be my choice for repose and refreshment. I must stick to town, however, for some months longer, before earning a right to the pleasures of idleness; and it has occurred to me that there may be complete distraction from ordinary mental pursuits, as well as the relief always derived from amusement, in thus recalling something of what I have done, or witnessed, from a position of some little prominence, in which I was placed at a very early age. Moreover, the time cannot be far off when the duty will be imposed on some kind friend of furnishing half a column of biography to the newspapers, and upon some President the labour of an obituary sketch for his address at the annual opening meeting of the Royal Society; and having myself felt the irksomeness of ferreting out sound information in the case of my departed friends in the like circumstances, it may be an act of mercy to furnish my future biographer with facts in my own case from the fountain-head.

My father, Professor of Humanity in the University of Edinburgh, was descended from agricultural forefathers in Forfarshire. The first Scottish member of the race must have come from a Norwegian pirate in days of old. Mine is not a family name in Scotland, and is indeed rare anywhere in the Scottish counties; but it is very common in Norway, and also in

a modified form (Christensen, Christiansen) both in Sweden and in Denmark. It is extremely rare in any Scotch county but Forfarshire, on whose coasts frequent descents were made in ancient times by the Norwegian piratical hordes, otherwise called, when compliment was intended, *Vikings*. My father, moreover, was a genuine Scandinavian in frame—tall, broad-chested, long-bodied, strong-limbed, very muscular every way, with small features for his size, calm determination in his looks, and of intense though quiet energy. I have heard it said that he was the strongest man in his parish; and my elder brother has often told me that when he was run away with by a pony at full gallop in his boyhood, my father gave pursuit, and on foot overtook and caught the runaway.

My father's grandfather, leaving his native county, became a considerable farmer in Berwickshire. But in his latter years affairs went wrong with him; and owing to this calamity, his son, my grand-parent, never rose higher than to be a small hill-tenant in the lower Lammermoors, somewhere between Edrom and Cockburnspath. My father was the eldest of the family, which consisted of seven,—five stalwart sons and two daughters. Encouraged by my father's success in life, several of his brothers tried, with his aid, to follow his example, but little came of their efforts. The son of one of them, however, has been [1871] for forty-eight years the much-respected clergyman of the town and parish of Biggar. My father's first move in life placed him, at the age of nineteen, in the

office of parochial schoolmaster of his native parish, Edrom. Ere long he became head-master of an academy at Dalkeith, which acquired at that time some fame as a school. Thence he was translated to the High School of Edinburgh. In 1806 he was appointed to the vacant chair of Humanity, or Latin (Literæ Humaniores), in the University. This crowning success in public life he owed not more to his classical attainments than to his varied acquaintance with philosophy and the physical sciences, which had already made him the associate of the most eminent of the remarkable literary, philosophical, scientific, and professional men of his time in Edinburgh. His cast of mind and accomplishments did much to give direction to my studies in the University, and form to my subsequent pursuits. His rule over his family was absolute, but unseen and unfelt. I never got a hard look or a sharp word from him but once; and I deserved the rebuke I got. When I was an impudent High School boy, I called a woman in our neighbourhood by an ill name—of which she was by no means undeserving. She followed me straightway to my father, to whom she told an unvarnished tale; and I got at once in her presence two or three peremptory words of admonition, which answered their purpose so far as I was concerned, but, I am afraid, left my accuser "no better than she should have been."

My mother was a Johnston, born of a long line of burghers in Edinburgh, well known in the Town Council, in which one of her brothers, Mr Robert

Johnston, was a much-esteemed member and official. As they sealed with the Flying Spur, they must have claimed descent from the Border rievers of Annandale. With a pirate at one end of the line and a robber at the other, one may fairly pretend to a decent ancestry. "There be land-rats, and there be water-rats;" and I am come of both probably. My mother was a first-rate domestic administrator. Her whole energy was devoted, by strong affection, to her husband and family. The latter she easily kept in good order—not without an occasional knock or two in my own case. The former she influenced much through intense attachment, and justifiable pride in his position and many fine qualities. But one failing of his on virtue's side she could not control—his perpetually succumbing to indiscriminate charity. He was not exactly the counterpart of my late colleague, Dr Alison: he did not get daily from his servant a pound's worth of small change before starting for work in the morning, and return in the evening without a single sixpence to take out of his pocket on going to bed. But no description of impecuniosity, real or pretended, appealed to his heart or purse in vain. Pauper, mendicant, and "gentle beggar" alike made of him their prey. Especially did he fall a victim to the heedless, selfish petitioner for gratis tickets for attendance on his university classes. The unscrupulosity of the asker was often not more astonishing than the facility of the granter. I remember a rough young mountaineer bringing one day an introduction, as the prodigy of

his parish, and a request for a gratis ticket, from a Highland minister of whom my father knew nothing. The prodigy got his ticket as a matter of course. Next year the same faithful shepherd sent three more sheep, all equally prodigies, on the same errand, and with the like success. I am afraid to estimate the cost of this indulgence; but I am sure that a thousand pounds was under the sum of which, during my father's fifteen years' occupancy of his university chair, his heirs were defrauded through an amiable weakness.

I may here mention that the family name, and its notoriety in that particular, exposed me to the impetrations of many similar suitors as soon as I became Professor, two years after my father's death. Having a fair share of natural feeling for talented poverty, I would have saved myself the pain of refusal. But a slender purse at the outset of professorial life, and the warning of paternal example, soon impressed on me the necessity of caution. Accordingly I borrowed a hint from an anecdote regarding a noted Edinburgh wit and eminent extra-academical lecturer on anatomy of his day, Dr John Barclay. Mr Laing, a very eminent bibliopole, father of the well-known antiquarian, David Laing, and a great friend of Barclay, sent him a needy student with a request for a ticket of admission to his anatomical lectures. Barclay,[1] a

[1] Dr John Barclay was a nephew of Barclay the founder of the sect of "Bereans." He was educated for the ministry, but afterwards studied medicine both at Edinburgh and London. His name is associated with an attempt to introduce a new and simpler anatomical nomenclature. He died in 1826.

benevolent and generous man, readily granted the free ticket, but at the same time told the youth to accompany him, and proceeded to Laing's shop hard by. There he asked to see some class-books on anatomy, selected three guineas' worth, put them into the youth's hands, and said to him, "You can do no good at my lectures without class-books: these are of the same price as my ticket: Mr Laing makes you a present of them." On the lad demurring, Barclay, with gleeful look and kindness of manner, bundled him out of the shop with the books in his arms. I therefore made it a condition with any similar suitor to me, that he should be a contributor to the maintenance or studies of his *protégé;* which condition soon became known, and lessened greatly the number of such appeals. Some years ago the Senatus Academicus resolved to put a stop to what had become a serious grievance, and we came to an agreement to submit every application for free tickets to a committee chosen from all the Faculties, who should examine, not only into the circumstances of each applicant, but likewise into his aptitude for study and his means for qualifying himself for a profession; and should grant him, in the event of approval, the privilege of free admission to all the classes in any one Faculty. This measure has proved an effectual check. I have had only two applications during the last five years.

But I have wandered, I see, far from the right track, to which it is high time that I should return.

I was born on the 18th July 1797, half an hour

before my twin-brother, now [1871] minister of the parish of Foulden,—also before the arrival of the midwife. Accoucheurs, now so numerous (unfortunately, I think, for the medical profession), were known in those days only to the upper classes of society. My father at this period occupied a detached house, somewhere to the north of the Crosscauseway East. But I never thought of identifying it till all who could have aided me in doing so had left this world; and the locality is now a dense mass of undistinguishable habitations. My father being in the town at the moment, and the family otherwise unprepared for my sudden arrival, it happened strangely enough that assistance was given by the late Sir George Warrender of Lochend, the present [1871] Baronet's uncle, at the time a boy of eleven, who boarded with my father. In after-life Sir George often claimed to have thus been my very first acquaintance in this world: and he amply repaid whatever privilege that incident may be thought to have conveyed; for in 1822, when he was a Lord of the Admiralty, he was the direct means of my being appointed Professor in the University—which was my first vantage-ground, whence I stepped to all my subsequent successes.

I have been assured by old friends that my parents looked on the advent of their twins as a consolation vouchsafed them under heavy family affliction. For not long before they had lost two daughters in early childhood from hooping-cough. The only other member of the family was my brother John, eight years my senior, subsequently an advocate and Sheriff of

Ayrshire, who after my father's death became my sole adviser, and for many long years my inseparable companion. It was not, however, till adult age that I knew how inestimable a treasure I possessed in my brother John. Until that time of life, indeed, a difference of eight years is generally an insuperable barrier between an elder and a younger brother so long as their male parent is alive, as they have little community of pursuit, whether at study or at play. My recollections of my brother in boyhood and youth recall to me a hard student and successful angler, but no particular alliances between us except twice, about my twelfth year,—first, when he set my twin-brother and me to cut up the leaves of eighteen quarto volumes of his 'Morison's Dictionary of Decisions,' for a reward of sixpence a volume; and secondly, when he guided us astray, and nearly caused us to make a night of it, on what was then an extensive moor between Jedburgh and Bedrule. He rode from Bedrule, a distance of seven miles, to meet my twin-brother and me at Jedburgh, on the arrival of the Edinburgh coach, to be our guide to our destination. Night began to fall, when he resolved to take a short cut across the moor. But having studied the map of the county, and being already accustomed to look to the stars for my guidance at night, I charged him with following a course right away from our destination. He rather sneered at my presumption, and pursued his way till we were stopped by a steep grassy ravine, which luckily no persuasion could induce his horse to descend. We therefore tried another course to round the ravine,

when, in the silence of the now deepening darkness, we heard the distant jolting of cart-wheels in the direction from which we had come. John judged it prudent to bear towards the sound; and in no long time we rejoined the road, and came upon the cart conveying our luggage.

I cannot say that I have any of those early infant recollections which most people pretend to have retained, but which are commonly nothing else than recollections of things told them by their nurses. It is no great matter to recollect having been pursued, at the age of five, along with my twin-brother, by a grumbling bull across a meadow at Peffer Mill to the door of our country quarters there; or when seven, having been pitched down an area in Drummond Street by a wicked street boy, and awaking afterwards in bed with four gorged leeches hanging at my temples; or when eight years old having taken to my father, while in bed in the morning, the news of the battle of Trafalgar and death of Nelson. These incidents I could scarcely forget. Of other equally early matters but a dim recollection remains.

At the age of six I was put to the English school in Drummond Street of Mr Milne, afterwards the Rev. Dr Milne, minister of Dollar, and the first Principal of the Dollar Institution in that parish. Milne was a short, strong-made man, endowed with great energy, and a powerful squint. He divided in the Old Town, with Mr Fulton in the New Town, popularity as a teacher in Edinburgh. By common consent, Fulton bore away the palm as an elocutionist, but Milne as

a teacher of grammar. The former was little more than a pedagogue. Milne was a fair classical scholar, a dabbler in science, a squire of dames,—in short, a man of accomplishments, who shone in society as a man of wit, not without a dash of eccentricity. He was, along with my brother John, much in the social circle of the little court of the Comte d'Artois, subsequently Charles X. of France, who spent several years in Holyrood Palace. Milne's fearless use of the French language brought him into many amusing scrapes in this society, of which the following is an apt illustration. One evening, cutting for partners at whist, he fell to the lot of a very lively, clever lady — a Madame Boyd — who seemed to be the life of the refugee party. She, well aware that Milne was no great player, paid herself some mock congratulations at her good fortune in a partner; upon which he, with the air and manner of a French beau, said, "Madame, je ferai votre plaisir toute la nuit." "Oh, monsieur," replied she, "la soirée suffira."

I must have owed much to Milne's teaching, though I cannot now remember what. For, on passing from him to the High School at the age of eight, and drawing by lot a very low place in a class of 120 boys, I speedily "crept out of the ruck," and found a permanent, but by no means a resting, place on the dux form. My master was Mr George Irving—quite new to the school,—an attractive, kindly man, who had the tact—a rare faculty in those days—to rule his scholars under the flag of mercy, and to make them work nevertheless. According to custom, I was four years with

him. In the first year I was fourth boy at the examination, in the second year third, in the third second, and in the fourth dux. My twin-brother was my fellow-pupil, and always not far from me.

It may be a pleasing idea, but it is a dubious measure, to have twins constantly together, at school and at play. The one who gets a little ahead of the other, as one of them is sure to do, is by parent and teacher unconsciously brought always to the front. The other of course falls instinctively into the second rank, leans too much on his brother, loses self-reliance, and is apt to feel too little the stimulus of emulation and the ambition to distinguish himself. But for this, my brother, who had excellent parts, dispositions, and acquirements, as all well know who have been intimate with him since he became a clergyman, could scarcely have failed to make himself a prominent member of his Church. As it is, he remains [1871], after fifty years' service in it, minister of the little parish of Foulden, in Berwickshire, into which he was inducted in August 1821. His natural modesty, in fact, degenerated into shyness and under-estimation of his own endowments and power, — very much owing, as I do believe, to his having been trained in all things, till the age of eighteen, in close company with his more forward brother.

A strange instance of his want of self-reliance in urgent circumstances I shall never forget. As a clergyman, his discourses were characterised by Scriptural purity, practical bearing, terseness of composition, and simplicity in delivery. He composed them

with ease. His memory was so quick and exact, that he could prepare a new sermon while pacing up and down in his garden; mend and patch it afterwards, as if he were correcting the press; and preach it word for word as thus stored in his head,—not writing it out till after delivery. Nevertheless, when he set about getting up his sermon on being introduced for the first time to his parish pulpit, he broke down altogether, was unable even to make a beginning, and so moped for several days that I inquired the cause, and drew from him a confession. Neither joke nor encouragement on my part made matters any better. I therefore, in a rash moment, asked for his text, and sat down, for the first and last time, to write a sermon. But, alas! I exhausted my whole stock of divinity on what would make scarce half a sermon for a Scottish audience. The example, however, was sufficient to extract the rest from himself; and when he preached next day, truly he must have been a dull hearer who did not detect the *haud callida junctura*, or the superiority of the second limb of the discourse.

I have now before me a list, obtained in 1843, of all who at any period attended Irving's class from October 1805 to July 1809 inclusive. It is a melancholy catalogue; and I would add to its sadness were I to tell the fate of several in it. Of 156 only fourteen are known to me to be alive; 91 are certainly dead; of the ultimate fate of the remaining 51 I am ignorant, though several were known to me to "live prosperous gentlemen" ten years ago. Of my schoolfellows in the upper region of the class, James Mathe-

son, who was my next neighbour in our fourth year at examination-day, and who fought me hard for the first place, went early into a mercantile house in Calcutta, removed thence to Canton, made there an enormous fortune—£1,200,000, it was said—chiefly in the opium trade, and brought it home with him. He was afterwards created Sir James Matheson, Baronet, of Achany and the Lews. Number three in our fourth year, Thomas Robertson, is now [1871] a prominent and respected stockbroker in Edinburgh; having failed in his first adventure, as a Writer to the Signet, to break the family fence which then, and even now, though to a less extent, kept the best of that branch of the legal profession in certain established lines of descent. David Marjoribanks, son of Sir John, a former Lord Provost of Edinburgh (of some note as an administrator and vigorous Tory), became a stockbroker in London, under the patronage of Coutts & Co., of course made a fortune, married another with Miss Robertson of Ladykirk, and is now [1871] Mr Robertson of Ladykirk, M.P. for Berwickshire on "Liberal" principles, and, out of the same political seed, Lord Lieutenant of the county.* We were most intimate at school for six years, till 1811; and in 1820, meeting in company in London at James Wardrop's, the oculist, he affected to have some faint recollection of me,—being the only one of my school-companions who in after-life has not met me with cordial greetings and kind remembrance. David Dundas, third son of John Dundas, W.S.—the boy

* Afterwards Lord Marjoribanks.

of greatest talent of us all, but who did not take kindly to school-work till we got into the rector's class—joined the English Bar, rose rapidly to be Sir David Dundas, Solicitor-General for England, and would in all probability have sat on the Woolsack before now, had his health not broken down under the enormous toils of a prosperous English counsel and political official. Robert Dundas, eldest son of Chief Baron Dundas of the Scottish Exchequer, and ere long, like him, Dundas of Arniston, had solid but not shining parts, which fitted him for filling some space in county affairs, had he not died before middle age. Douglas Cheape, entered at the Scottish Bar, was a conspicuous Tory in the troublesome days of 1819, had among his intimates a high reputation for wit, was for some time in our University a most agreeable colleague as Professor of Rhetoric, and resigning on his succeeding to an estate, died an idle country gentleman. David Macfarlane, son of a well-known advocate of that day, had a fearful stutter, of which we used to think Davie sometimes took advantage when he did not know his lesson, and of which he gradually got rid after going out as a civilian to India. He was long Police-Judge at Calcutta; and retired about middle age, returning to his native city with a civilian's comfortable fortune and retiring allowances; but he died not many years afterwards of paralysis. John Dalzell, youngest son of the Professor of Greek of that name, a great favourite in the class, died young at the Scottish Bar, with fair promise of success and distinction.

Andrew Combe, always looking an invalid, became Dr Combe, phrenologist, and was brother of George Combe, who was long the leader of the sect in Britain. Andrew's life was that of a constant valetudinarian, and he died in middle life, respected much by all who knew him for his solid professional knowledge and kindly disposition. David Marshall, belonging to one of the jeweller-families of the name, rose in the East India service to be captain of one of the frigate-built argosies of the old Company in the days of its monopoly of the trade with India and China. David Syme, a member of the Bar, brother of my dear departed friend and colleague, lives [1871] at Kinross, Sheriff-substitute of the county. Robert Clerk Rattray, son of a baron of the Scotch Exchequer, and a nominal advocate, succeeded at an early age to a fine estate, and lived and died taking care of it. Very similar was the lot of John Home Drummond, grandson of Lord Kames, and younger brother of Mr H. Drummond of Blair-Drummond. James Campbell—son of a solicitor, I think—emigrated to Jamaica, in the department of the law, and died in middle life the Honourable James, Member of the Island House of Assembly. I may add John Sinclair, and also Fletcher Norton, though not among the *Dii majores* of the school, because the former succeeded to the baronetcy of Dunbeath in Caithness, and the latter to the English barony of Grantley,—and both still survive [1871], the former a valetudinarian of 77. Lastly, John Reid, son of a grocer in Bank Street; John Dick, son of a small Cowgate spirit-dealer;

and Peter Charles, son of an opulent candlemaker at the Sciennes, and city bailie,—who each held a good place in the class,—were led by the circumstances of their position into occupations in which their High School education could be of no great service to them, nor could it help to make them conspicuous.

It is a common saying that a man's place in society does not often fall according to his place at school—that boobies may make a figure, and duxes none, on the stage of life. This notion may be a solace to boobies and their parents, but I am convinced it is a fatal mistake, kept up probably by some rare but remarkable exception, *quæ firmat regulam.* Such an exception is often quoted in Edinburgh in the case of the late famous member of the Scottish Bar and Bench, Henry Cockburn. He himself in some memoranda published in his biography, alludes to his failure at the High School, and ascribes his want of success to his teacher not having understood the art of winning boys to diligence, but attempting to thrust it into them by severity. As his teacher was my father, who in his later years was almost idolised by his old pupils,—whom Lord Cockburn himself supported by his own opinion and influence in the competition for the Professorship of Latin in 1806,—and who never failed in making a scholar out of good materials in any other instance that I ever heard of,—I am disposed to think the real cause had been either mismanagement at home, or perhaps an inherent idleness, which it was notorious to his professional friends that Cockburn never overcame. Of this professional opinion

of him I remember well the following curious illustration. When at the Bar, he encountered in one of his early morning walks ——, his junior in standing, though not in years, himself in a high position at the Bar, but who had recently fallen into the sad calamity of drink-craving. Drink affected —— very singularly, as I knew well, being intimately acquainted with him. When in one of his paroxysms, he would show to a stranger no trace of it in his gait, his articulation, or even his ideas. He became much flushed, which might have escaped notice because of his usually florid countenance. He lost his constitutional shyness, becoming, however, thereby more brilliant, though sometimes also rude. He always had no recollection afterwards of what he said or did in this state. He was in one of these fits when he encountered Cockburn, who, for a fellow-advocate and fellow-Whig, was not at all intimate with him. Cockburn was, therefore, not a little surprised when —— began to play the part of a kind but offended parent, and gave much good advice and some remonstrances,—told him he had the finest talents at the Bar; that he ought to be at the head of it, and would be too, but for his laziness; that he ought to study his cases; that it was a shame to him to trust to his quickness and promptitude, and come, as he did, before the Bench, evidently without having prepared his case; that clients and agents noticed his unpreparedness, which was telling seriously upon him at the Bar; that he must see how men much junior to him were treading upon his heels;—and more to the same effect. Cock-

burn was astonished, but frankly told the story in the Parliament House, acknowledging he had got true and sound advice, but wondering at the source from which it came. —— was, of course, informed of the freedom he had taken, greatly to the mortification and shame of a very sensitive man. The incident might have cured two talented and most estimable men. But it mended neither: one died in the odour of idleness, the other in that of brandy.

The several fates of my schoolfellows afford no countenance to the vulgar saying which I have referred to. Those near the top of Irving's class, who lived long enough, have, with few exceptions, filled more or less space in the public eye. Of those, on the contrary, who were near the bottom, not one has succeeded, to my knowledge, in making even—money. Four brothers, sons of an Edinburgh carver and gilder, who sat all steadily on the booby form, and occasionally shoulder to shoulder at the very end of it, continued to hold the same relation to one another, and to society, to the end.

When my brother and I began our High School course, my father was so occupied with his first year's labours at the University that he could take little charge of ours at the High School, and therefore committed the preparation of our lessons to a tutor. He, a quiet, good-natured, elderly man, had no difficulty in keeping us to our work, with the aid of an occasional inquiry on the part of my father. But when our third year drew to a close, we discovered that our tutor was not always prepared to overcome our diffi-

culties, and we therefore asked to be left to our own resources during our fourth year, which rather daring petition was readily granted. The result that year being satisfactory, the same freedom was continued when we passed into the rector's class next year, and afterwards to the University. Nor did my father now place himself more than previously *in loco tutoris.* He saw that we did our work. When we appealed to him in a difficulty, he generally sent us back to work it out, and very seldom with more than a hint to guide us. This was all the aid we got from one who could have put us ahead of all rivals, if he had chosen.

I mention this circumstance, because, in an autobiographical sketch of our school-days in Dr Steven's 'History of the High School,' our rectorial dux in our sixth year, Archibald Carmichael, afterwards classical master at the Edinburgh Academy, hints at his near neighbour in the class, the professor's son, having had advantageous "circumstances" in his favour. But Carmichael ought to have known that my father was one of the last men in the world to encourage shams, or enable a son of his to achieve success under false colours. He also, when squaring our several advantages of position, might have added, without any disparagement to his impartiality,—*firstly*, that, if he was Latin dux of the High School, I was Greek dux; and *secondly*, that, in competing for the former honour, a boy of fourteen laboured under some disadvantage against a lad of seventeen. The fact is, that in Greek Carmichael

held, at our final examination, only the sixth place. In one exercise, however, he beat all us Grecians hollow — viz., reading the Testament *ad aperturam*. The reason was, that his father had so trained him in the English New Testament that he had most of it by heart. Consequently, he had only to decipher the cabalistic Greek letters that denote chapter and verse, and the translation was at his finger-ends. We, his companions, used often to smile when Carmichael thus triumphantly took the first place from us all, knowing how surely at parsing or rendering into Greek he would tumble into his natural position. But we thought it odd that our acute rector, Pillans, did not seem to penetrate Carmichael's secret. Perhaps he did penetrate it, but ignored it, willing that his Latin dux should enjoy occasionally a Greek victory.

In October 1809, according to ancient use-and-wont in the High School, above one hundred of Irving's boys passed into the rector's hands in their fifth year, and these were soon promiscuously mingled with about fifty of the rector's scholars of the previous year, now in their sixth. I had then two months' training under Dr Adam until his death. I am not writing the biography of Adam, nor the history of the High School, but merely my own. Therefore be it known unto all whom it may concern, that I lost the first three weeks of this novitiate through a severe scald of the right foot, caused by my having brought a big kitchen-kettle of boiling water down upon it while bending a "shinty" at the fire in our country

quarters. Meanwhile many of Irving's boys had got above many of the boys left from the rector's previous year. But a new arrival, the dux of a private school in the neighbourhood, taught by an able teacher, Mr Mackay—a little boy, James Watson, afterwards a rather unsuccessful advocate — strode rapidly over my comrades, who frequently called to know when I should be able to turn out and "take up the running with him." At last they were in despair,—Watson had headed all of Irving's scholars. On my appearance I had to go below all boys of the previous year, and thus it happened that I sat down booby for the first and last time, to the great amusement of my comrades. It was for a very short time. Adam gave me the needful opportunities. A few long leaps brought me near the intruder, and on the third day, if I do not err, I passed him with a "ruff" from my old companions, which our good old master, though a strict disciplinarian, winked at, not ill pleased probably that the High School had asserted its place.

Soon after this incident David Dundas awoke to a knowledge of his strength, and distanced all of us of his own year. With steady progress he approached the top of the class, and actually seemed to threaten a contest for the duxship of the school, even in his first rector's year, and against the notorious Robert Knox, the acknowledged head of the second-year's scholars,—a person even then of marked ability, but five years senior in age to Dundas and all of us who were Dundas's contemporaries. Dundas, however, in

his path as a conqueror, had to pass over the bodies of his two elder brothers, Ralph and William (the former died a young W.S., and the latter died, a few years ago, a rich retired India civilian, and laird of Ochtertyre, in the south of Perthshire, near Stirling). His brothers took their defeat so much to heart—especially William, on whom it made, evidently to us all, a deep and lasting impression—that their father, probably by advice of Pillans, withdrew David from the class, and sent him to an English school. His subsequent destiny has been already alluded to.

Dr Adam died in December 1809, about two months after I became his pupil, and was succeeded by my lately deceased and attached colleague in the University, James Pillans. The *interregnum* fell into the hands of Luke Fraser, an effete old man and retired High School teacher, who had been four years on the shelf of inaction, and whose offer to carry on the class in the interval was accepted by the Town Council in an ill-omened hour. Fraser had retired from the school with the reputation of a merciless tyrant. But he now resolved to redeem this part of his character by ruling the boys in his new capacity with the rod of honour only. His code of boy's honour, however, developed itself in some half-dozen such singular practices, carried into effect with such eccentric details, as led to nothing else than a well-organised insubordination. In this state Pillans had to take us in hand, and a hard task he found it to break us of all the tricks we had been taught. In more than one record which I have read of those days, the resistance he

encountered has been ascribed to the disappointment of the boys, who naturally had, during the canvas for the rectorship, a boyish bias in favour of a High School master, and against an outsider. But this is an entire mistake. The strange school habits created by Fraser's oddities were utterly at variance alike with good order and with Pillans's views of discipline, and his enterprising designs for improvement of the school; and our previous tuition under Fraser's honour-code had been so complete that collision was inevitable. Collision led to strife; personal strife was at one time imminent, and Pillans's success was so doubtful, that it was afterwards currently said he was at one time on the point of giving up his task in despair. But Pillans was a resolute man, and I do not believe the imputation. Contrary to his noble nature, however, and to his well-considered opinions on school punishments, he was at last, after much patience and endurance, reduced to the sad necessity of inflicting the *summum supplicium* of the school. The immediate offence was a very trifle; but it was in defiance of a solemn warning and determined threat, the result of much general wanton disobedience of the class for some time before. This severe penalty was inflicted—for the second and last time in my presence—upon Peter Henderson, a strong and always unruly lad. He and two others, stout lads of seventeen like himself, had come under a solemn league and covenant, that, in the event of an attempt to subject any of them to such punishment, the two others should join in the defence. When the repulsive preparations

were far advanced, amidst the powerful struggles of the victim, one of the band, Hamilton, afterwards of Sundrum, stood up and called across the room to Knox, the third of the triumvirate, to "come on!" Had he met with the expected response, the class, so great was the excitement, would have followed like a flock of sheep. And what then? But Knox stood still, bent eagerly forward, and gave no sign. Pillans gained the day. Henderson left the school disgraced, and in a day or two more Hamilton was expelled for firing a pistol, by way of bravado, in the staircase. Rumour, with her false tongue, sent a bullet through the class-room door.

Pillans had achieved a victory; but there was still one remaining trick for him to discover and quash. He had not yet used the "taws" in the ordinary way, but soon found a suitable occasion. Fraser had taught us that masters were apt to be sometimes too severe with their punishments, and therefore authorised us to count his "palmies," and to call out when we thought the culprit had enough. Accordingly, when Pillans inflicted the first whack, the whole class, on every side around him, sung out "One!" Pillans, much startled, looked round and round with a threatening air, but took no other notice. The class went on—"Two—Three—Four," and now added, "That's enough! that's enough! that's enough!" Pillans, however, went on with five—six, and then stopped. The same morning there arose a second occasion for the taws; but he put off execution till the afternoon. Before commencing, he promised us the classical pun-

ishment of decimation, if we should repeat the morning's offence. But decimation leaves many chances of escape, and had no terrors for us. Again, at the first stroke, the whole class shouted "One!" Pillans, highly incensed, vowed repetition of the *summum supplicium*, the horrors of which were fresh in our recollection. At the second stroke, one single voice only—that of a class-favourite and well-behaved boy, Arthur Welsh, son of Welsh of Collin—shouted out the numeral "Two!" A momentary pause and pang of distress was followed by a universal shout of laughter, to which Pillans joined his quiet smile,—taking, with great tact, no further notice. From that time his rule was firmly established, and his class did ample justice to both his discipline and his teaching.

It is strange that I cannot bring to remembrance my place in the class in my first year with the rector. I think it was ninth. In the second year I was third. I do not now clearly understand how I allowed Thomas Robertson, third boy in our fourth year with Irving, to take precedence of me in our sixth with Pillans. It was in vain to contend with Carmichael for the first place. He was no mere boy, but a youth of seventeen; and I, a real restless boy of fourteen, could not compete, unless, like him, I had trimmed the midnight lamp, and trenched both upon my sleep and my play. This I could not have done, —and probably would not have been allowed to do. My impression therefore is that, the first place being unattainable, I did not care much for the second. How otherwise was it that I held decidedly the first

place, against both Robertson and Carmichael, in the Greek division?

The only thing else I can recall in the line of scholarship in this my final High School year, is that I must have met with my teacher's approbation in working at a novel exercise which he was the first to introduce into the school,—the composition of Latin verse. For he subsequently printed some lines of mine in a little book which he published, in order to show what he had been able to make his High School class do. As this juvenile performance elicited criticism and commendation from no less an authority than Francis Horner (see Dr Steven's 'History of the High School of Edinburgh,' p. 306), and as Dr Steven, after the publication of his book, obtained a copy of my exercise for me, I may here present it as being the first composition of mine which saw the light. Although Pillans gave me no little praise for it, I was not encouraged thereby to cultivate my poetic vein on any future occasion.

Translation from Pope's Homer's "Iliad," Book viii. line 687.

"As when the moon, refulgent lamp of night,
O'er heaven's clear azure spreads her sacred light;
When not a breath disturbs the deep serene,
And not a cloud o'ercasts the solemn scene;
Around her throne the vivid planets roll,
And stars unnumbered gild the glowing pole,
O'er the dark trees a yellower verdure shed,
And tip with silver every mountain's head;
Then shine the vales, the rocks in prospect rise,
A flood of glory bursts from all the skies;

The conscious swains, rejoicing in the sight,
Eye the blue vault, and bless the useful light."

Ut cum luna silens in opaca nocte refulget,
Spargit et in vastum lumina clara polum ;
Cum neque perturbat cœlum levis aura serenum,
Nec nebula officiens occulit atra jubar ;
Cum circa solium volvuntur sidera lapsu,
Perque polum nitidum plurima stella micat ;
Mittitur in viridem color et jam flavior herbam ;
Lux quercus ornat, montis et omne caput,
Apparent valles, rupes et in ordine surgunt,
E cœlis subito gloria magna ruit.
Protenus hoc videt, et visu lætatur agrestis,
Cœlum et suspiciens utile lumen amat.

R. C.

" Perituræ parcite chartæ."

Thus came to an end my High School years,—six years spent in learning Latin and Greek, and in gaining a knowledge of embryo men. Arithmetic and writing I was taught at a private school hard by. Arithmetic I took to readily, and mastered with ease ; but I fear I never gave my writing-master satisfaction, though he scolded me well for wasting his paper by my haste, and cramping my pot-hooks by crooking up my fingers on my pen. Nevertheless I acquired facility and distinctness ; and I heartily wish that the multitudes whose MSS. I have been condemned to decipher in my lifetime had been equally fortunate.

Was it an error or not in the pædeutics of those times to confine the mental culture of boys between

eight and fourteen or fifteen to the classical languages and arithmetic? I think our fathers were right.

For thirty years past a crusade has been carried on against the ancient classics having a monopoly of school-boy education. George Combe, the phrenologist, did more than any other man in Edinburgh, by his pertinacity at public meetings and in newspaper lucubrations, to bring about a change. He would be much delighted, were he alive now, to find that his desired reform has been carried so far that nowadays there have been added to the five classical masters separate teachers of English, French, German, and Hindustani, Mathematics, Physics, and Engineering, Chemistry, Botany, and Zoology, besides Drawing, Fencing and Gymnastics,—twelve new masters in the High School.

The purpose of the new system is to inform the minds of boys more variously, and to teach them things thought likely to be more practically useful to most of them than an accurate knowledge of the ancient classical languages,—a desirable object, if it could be attained at such an age, or in such a way. But the proposal to teach boys all these things ignores what we know of the constitution of the human mind in boyhood.

Between the ages of eight and fifteen the mind has to grow in size and strength as well as the body. The one cannot grasp knowledge, any more than the other can exert muscular power, with the force possessed at a later age. The amount of knowledge acquired, or acquirable, during the six years which constitute a

High School life, has been much overrated by late reformers of youthful education. How scanty is it compared with the acquirements of the six years which follow!

Therefore, at this time of life, tuition, following nature's indication, should be directed not so anxiously to fill the too youthful mind with knowledge, as to develop and strengthen its powers,—to train and not to cram it. But the mind is not to be trained to accuracy, endurance, and depth, by the hasty cultivation of a great variety of arts and sciences. That method can teach only superficial thinking. The mind must be exercised with perseverance on a few subjects only, —which must, of course, be well chosen. And what choice can be more apt than the study of the languages and literature of ancient Greece and Rome? Of all the studies suitable for boyhood, there is no other, so far as I can see, which is so likely to strengthen the memory, attention, imagination, and judgment. There is none so capable of attaining that object, and at the same time so attractive,— or so certain to instil taste, morality, patriotism, and other virtues,—or so useful for imperceptibly infusing an accurate and ready use of the English language,—or so indispensable as the groundwork for the acquisition of foreign modern tongues. Therefore I say in 1871, up with Latin and Greek for boys, and down with George Combe. Leave other weighty matters till a later age, when greater maturity of intellect, and previous classical training, will render other knowledge much more easy of pursuit.

During the six years ending with my fourteenth, I learned a deal of Latin, Greek, English composition, arithmetic, and writing. But during the next six years I added much to my Latin and Greek, mastered French so as to read it fluently, advanced far in mathematics and several branches of natural philosophy, became familiar with logic and ethics as understood in 1815, knew almost all that was then known in chemistry, botany also well, mineralogy and geology also fairly, anatomy and physiology thoroughly, and so much of the practice of physic as enabled me, at the age of twenty, to undertake with some sense of security the duties of Resident Medical Officer in the Royal Infirmary. There is evidently no comparison between the acquirements of the two periods, — no doubt therefore of the mind having to attain during the former period that maturity which enables it to grasp so much more during the latter.

During my High School days I stuck to my lessons pretty well, as may appear from the places which I held in the classes. But I confess I was at least equally faithful to play. Shinty [hockey], clacken,[1] football, races, leaping, wrestling, tops, peeries [peg-tops], bools [marbles], and papes [cherry-stones], each in its season, had a fair share of my time and attention at school. Saturdays and other holidays were devoted to country rambles, and summer

[1] A light wooden single-hand bat, with small, round, flat head, used nowadays for a kind of shinty and a game similar to "fives."

evenings to scampering over Arthur's Seat and its environs. Before I was six years old my father "flitted" to a detached house in the Pleasance, with a flower-garden behind opening into a large grass park, which was bounded by the then sequestered Dumbiedykes road, and beyond by the steep slope of Salisbury Crags. The constant sight of the long green acclivity, topped by its grand perpendicular cliff, and the habit of scrambling over it, as well as over its somewhat loftier neighbour, Arthur's Seat, bred in me no doubt that love of mountain scenery and mountain exercise which has never left me, and never will, even when an end shall be put to the power of indulging it. On either side of our green park there was nothing but a succession of similar fields. But now, alas! the whole of that beautiful rural suburb has become a mass of high and densely crowded dwellings for the work-people of the town.

The games which had been handed down to us unchanged from one generation to another of High School boys, have not been spared by the ruthless tooth of reform, which has for many years been gnawing and altering almost all other things of far higher consequence. Football was then a first-rate game, though there was neither "hacking," nor "mauls," nor "touching down," to put life and limb in danger. Our races were excellent, though done without flannels, or timing, or handicapping, or a dictionary of flash terms. Tops, peeries, and bools have been banished, and consigned to that

class of the boyish population which was known, as it is now, to all grammar-schools by the pleasant name of "blackguards"; and papes have long ago disappeared so utterly, that no High School or Academy boy now knows the meaning of the word.

"Papes" is local Scotch — not in Jameson — for cherry-stones. Cherry-trees in my young days were robbed as much for the papes as for the cherries. They were counted by "castles" of four each. The game of papes was played by the players placing each his castle, three papes close together and the fourth resting on the middle of them, in a straight line from a wall; and, from a distance of ten feet, each boy in turn took a step forward, and tried to hit one of these castles with another pape, the biggest he could get. If he caught his striker as it rebounded from the wall, he could repeat his aim from where he stood; and if he knocked any of a castle outside of a narrow ring drawn round each, he made a prize of them, and had a right to go on with the game, the losing party replacing what had been thus captured. Many boys acquired great skill, and stored much booty, at this really dexterous, quiet, and unfrolicsome game. The row and the frolic were reserved for the wind-up on the 1st of August, the annual examination-day before the autumn holidays, when the Town Council of the city, robed and halberdiered, walked from the gate to the hall between two dense rows of several hundred schoolboys, showering from all sides handfuls of papes at the processionists, and especially at the

Lord Provost. The winnings of a whole summer were thus spent in a few seconds; for nobody but "a hen" ever deigned to gather any of the treasure thus densely scattered over the courtyard. Oh the good old times, when such a reception was bestowed as an exceeding great honour!

CHAPTER II.

UNIVERSITY—GENERAL EDUCATION.

DUNBAR — LESLIE — WALKER - ARNOTT — JOHN PLAYFAIR — LOUIS CAUVIN—DEBATING SOCIETIES—DANIEL RUTHERFORD—CHARLES HOPE—CHEMICAL SOCIETY—SYME AND OTHERS—"PARAFFIN" YOUNG ON PATENTS.

LET loose from the tight bonds of the High School, I, with very many of my schoolfellows, became *Civis Academiæ Edinburgensis*—a student of "The College of James VI. King of the Scots"—in the end of October 1811. The abrupt cessation of corporal punishment, version "pœnas," and the taking of places, had no discoverable effect in impairing either the diligence or the discipline of us boys. Probably the dilution with strangers, many of them several years older than ourselves, contributed something towards this result. But there was obviously also a greater respect for the place, and likewise for the teacher.

I passed the next four years in attending the classes in the Faculty of Arts—viz., Latin, Greek, Mathematics, Natural Philosophy, Logic, Moral Philo-

sophy, and Rhetoric. But during the last two years I also attended Botany and Chemistry; and outside the University I studied French under a great character of the day, Louis Cauvin. Our University work began at eight in the morning, and ended at three in the afternoon. I do not recollect that any of us, either at this time or some years later, when we attended Materia Medica also at eight o'clock, ever complained that this was too early an hour for work to begin, whereas now many growl and arrive much too late, because, forsooth, they must turn out for College at nine; and my colleagues have often expressed their wonder that I still continue to prefer that extremely early hour for my lectures. It is singular to observe how with the advance of years life gradually pushes into the dark hours, while nevertheless time seems shorter and shorter for all that has to be done during the light of day. With class-hours crowded on one another, the University has been deprived of an entire hour for work. Very recently our Law Courts, though business has required them to sit two hours longer than they did thirty years ago, have advanced their hour of meeting from nine to ten. Their hair would stand on end were High School boys told, as they were in my school-days on the arrival of summer, to appear at seven in the morning, and be dismissed at one o'clock for better enjoyment of the greater sunshine and out-of-door exercise. When I was a young adult, the usual family hour for dinner was four o'clock, and the company hour five; but gradually the former has been advanced to six and the latter to seven, or, as

in London, to eight. What is gained by this result of "high civilisation"? I know not. But I can see what is lost. In summer we lose the charming morning hours, generally the finest of the four-and-twenty; and we equally lose the beautiful evenings, the most delightful period of the day for open-air recreation. In the winter, the time for social converse after dinner is so shortened that it is apt to be spent in formalities; and public assemblages become gradually circumscribed, so that concerts are cramped, and dramatic entertainments of a high class become an impossibility. One needs to look for the decline of the drama in Britain only to the very late dinner-hours of that class of society which used in my young days to be the main patrons of high dramatic art. What lady nowadays would ever dream, when she gives a dinner-party, of engaging a box at the theatre for those of her guests who might prefer "Coriolanus" or "The School for Scandal" to a long evening of possibly unsuitable conversation?

I joined, on entering the University, the second Latin and second Greek classes, the first classes being too junior in progress for the capabilities of a well-trained High School boy of fourteen. The system of teaching pursued at both the Latin and Greek classes was on four days of the week much the same as at the High School. The fifth day was appropriated to lectures, generally on some subject in philology or antiquities, usually interesting and always instructive. In the Latin class my father was rather shy in drawing out his two sons; and he publicly intimated

that we were not to compete for the annual prizes. I made good additional progress, however, during the two years of my attendance. In Greek I made more, because I had much more to learn. I became fond of it too; and the professor took pains to foster my liking by bringing me well forward. Professor George Dunbar was never a popular teacher. His voice was harsh, his manner not captivating, his countenance stern, seldom softening into a smile and that evanescent, even when he complimented a catechumen with "Optime dixisti, domine,—sedeas." But he could do deeds of kindness. He was never otherwise than kind to me as a student,—perhaps on account of the mutual regard always subsisting between him and my father. There must have been good points in a man who attached himself to my father in the bonds of cordial friendship for fifteen years, and until death divided them. It was said of him that he made few Greek scholars. An intimate friend of mine once said to me of himself, that he "took some Greek with him to the College from the High School, but left it all in Dunbar's class-room." I hope that this censure owed its birth rather to its wit than to its truth. At any rate, Dunbar certainly did much towards making me a Greek scholar; so that I read prose with pleasure,—that pleasure which arises from feeling that one enters into the elegance, and force, and mind of an author—something very different from that other pleasure which consists merely in mastering the difficulties of the language in which he writes. My destiny, or destination, however, soon led me to different

fields. I had to quit Greek for other and less congenial pursuits; and what I knew of it gradually oozed out through neglect — yet not altogether or beyond recall.

This consummation was hastened in consequence of my affections being taken possession of by the study of mathematics. I had done a little in this direction with a private teacher before joining the University class, then taught by John Leslie, afterwards my colleague as Sir John Leslie, Professor of Natural Philosophy. Leslie was an unsafe teacher for a mere beginner: he presumed too much on the aptitude of the youthful and untrained mind for mathematical reasoning. In arriving at results, his ingenuity had shorthand ways of working, which he was unsuccessful in explaining, and could not communicate. Moreover, his style was laboured, often affected, sometimes far-fetched,—apt at times to excite the risible instead of the contemplative faculties of the listener. I remember, among other instances, my fastidiousness being shocked by his winding up the life of Pythagoras, in an introductory historical lecture, with the information that "thus died this illustrious philosopher at the advanced age of the square of nine." But Leslie made mathematicians. Among these, no one in my time gave more promise, and no one gave Leslie greater pleasure, than George Walker-Arnott, my fellow-student, son of an old Kinross-shire family-friend, Mr Walker-Arnott of Arlary, and ultimately successor to Sir William Hooker in the Chair of Botany in the University of Glasgow. He carried off Leslie's

first prize, and I quite a secondary one : indeed I rather think I lost it by a toss-up with an equal competitor. But I was vain enough to think at that time that, if Leslie had limited us to a moderate number of hours, such as four hours of work, I should have beaten Arnott—who was slow, though sure. My restless muscular system could not tolerate a very long sitting; while Walker-Arnott could stick to his bench from ten in the morning till nightfall in the end of April, long after every one else had left the competition-room. Limitation of time, the rule now in our Medical-Faculty competitions, is, I think, a fairer system than that which enabled my friend to distance all his mathematical rivals. For several years Walker-Arnott continued, after his University attendance was over, to cultivate mathematics almost alone; and he pursued it into its most transcendental regions. But, for reasons I never heard, he paused in this career, and suddenly betook himself to the least kindred of all other sciences, botany. Leslie once spoke to me with great bitterness of this extraordinary wheel. "Have you heard," said he, "of this melancholy change that Walker-Arnott has been making?—a man with so fine an intellect for the mathematics!—to desert it for botany!—botany!—the lowest exercise of the reason of man!" Long after the deserter had eminently distinguished himself in the cultivation of botany, when I had occasion to toast his health at a dinner of the "Edinburgh Botanical Club," I told the Club of his early distinction as a mathematician, of which scarcely a member

but myself was aware, and mentioned this amusing sneer as my *causa scientiæ*. But Arnott, who by this time had travelled the path of botany into the Glasgow professorship, was simple enough not to discover the compliment, and got exceedingly sulky.

I scarcely think that my attachment to mathematics was the fruit of Leslie's nurture. The true incentive was the example and encouragement of my father. At a late period of life he betook himself ardently to mathematical study, which became ever afterwards his main relaxation from his classical and professional labours. In the course of a few years he made himself known as one of the most profound amateur mathematicians in Scotland. In the course of these studies he became satisfied that mathematics was not taught early enough in youth, and that even a boy of fourteen could be carried far into its recesses. He overrated the capacity of the mind at this early age. But, in illustration of his tenets, he set upon me not long after that very juvenile period, and gradually plunged me deep in his own studies. The upshot was that at eighteen I could fight my way through Newton's 'Principia'; and when, after an interlude of six years, my destiny seemed to be chemistry, and I therefore determined to master, if I could, the mathematical physics of the day, I found I could travel faithfully through the first volume of Biot's 'Traité de Physique.' But, like my Greek, almost all that acquisition has evaporated for want of use.

Physics I studied next, under John Playfair, with

great pleasure and not without success. Professor Playfair was a charming teacher,—so simple, unaffected, and sincere in manner, so chaste in style, so clear in demonstration. I retain now a more lively admiration of him as a lecturer than of all my other professors, except perhaps James Gregory—an extremely different man indeed, yet with various attributes in common with the natural philosopher. In evidence of my diligence as Playfair's student, I solved all his weekly exercises but one ; and he had to confess, when he told us the result of that week's work, that he had inadvertently omitted to furnish us with one of the data essential for solving the question,—adding, however, that "nevertheless two gentlemen had solved it, or at least had thought they solved it."

When Playfair had nothing to demonstrate, he always read his lecture, and read it well. His diction was so graceful, and his delivery so simple, yet earnest, that he commanded deep attention. Let any one read his 'Illustrations of the Huttonian Theory,' and the cause will be apparent. No one who witnessed his facility in demonstration—when, of course, reading was impossible—could have imagined that his reason for reading, when he had not subjects of demonstration to keep him steady, was the fear of speaking without book. But such was the fact. He was said never to have spoken an address or lecture. Hence on a memorable occasion, when, as president of the Astronomical Institution, he had to do duty as chairman of a great public dinner after the laying of the foundation-stone of what is now the Royal Edin-

burgh Observatory, great curiosity was felt by those who knew his weak point, as to how Playfair would acquit himself in a position where reading would be absurd, and speaking would be a necessity. But Playfair was a match for the occasion. His toasts consisted of short, pithy, finely turned sentiments, which went to the hearts of all, satisfying everybody. His "toast of the day" was this:—

"Gentlemen, I have now to beg you to fill your glasses for the special toast of this evening. I have to propose to you the prosperity of the edifice, the first stone of which was laid in your presence this forenoon, — the future Observatory of Edinburgh. May it be as stable as the rock on which it is built, and the science to which it is dedicated."

While the chairman was disposing of his toast in this happy vein, he was vociferously applauded by a guest beside him, the officer commanding the artillery of the district, who was also one of his students. In an evil moment it occurred to those near him to suggest to Colonel Smith that he should propose the chairman's health,—an invitation which he at once accepted. Now the Colonel was a bluff soldier, brought up in campaigns, more accustomed to speak to his guns than to a sea of scientific faces all gazing at his own, and moreover, a member of that army which for the second time "swore terribly in Flanders." Accordingly he broke down at the outset, and subsided at once in a startling peroration. "Gentlemen," said he, "I have the honour to propose a toast, which I am sure you will all be de-

lighted to drink. This is the health of our most distinguished chairman, Professor Playfair. (Prolonged applause.) Professor Playfair, gentlemen, is a man—is a man—gentlemen, Professor Playfair—Professor Playfair, gentlemen—I say, gentlemen, Professor Playfair is a man who—a man—Professor Playfair is a man, gentlemen—is a man who—who—who—I say again, gentlemen, Professor Playfair——By God, gentlemen, Professor Playfair is a man to go even to hell with!"

A short pause of horror, a universal peal of laughter, and a round of hearty applause, successively followed this unprecedented harangue. Then came a silence of deep curiosity to know how Playfair would take it up. But Playfair had been fairly roused, and was not taken aback. "Gentlemen," he replied, "I have to thank you very much for your cordial concurrence in the toast which you have paid me the compliment of drinking. But I know not where to find words adequate to express the acknowledgments due from me to the gallant Colonel for the very uncommon proof he has given of his regard and affection for me. We have heard of many instances in history of great attachment between friend and friend. But the gallant officer has surpassed them all. For, in the history of the world, I am not aware of any man, since the days of Pylades and Orestes, having been willing to accompany his friend—to the place which he has mentioned."

There is an admirable bust of Playfair by Chantrey in the Library Hall of the University. Playfair was

a very little man, but with a massive head, and a countenance rugged, and ill furnished with a nose, but which nevertheless commanded respect. Chantrey has softened the features, while retaining the exact likeness : the bust is nature kindly expressed.

During my studies in the Faculty of Arts, my teachers of philosophy were Dr Ritchie for Logic and Metaphysics, and Dr Thomas Brown for Moral Philosophy. But neither the one nor the other made me a student of philosophy. In both classes I was inattentive, in one of them idle, and I fear sometimes mischievous.

I do not know why I did not work in the class of Logic. Its professor, the Rev. Dr David Ritchie, one of the city clergy, was a tall, big-boned, strong man, with a powerful rough voice, and great energy though little polish in his delivery, more illustrious on the curling-pond than in the professorial chair. I gave in, for our first set exercise, an essay which met with much commendation from him. Nevertheless, from that moment I ceased to be diligent, and even did not attend the class quite regularly. Moral Philosophy I attended with regularity under Dr Thomas Brown. But it would probably have astonished his many ardent admirers to be told that he never enchained my attention. The fact was that I never became reconciled to his affected feminine delivery, through which I was unable to discern the excellence which his lovers found in his matter.

It was not, however, the subjects of logic and moral

philosophy which repelled me. By no means. I read at home, with full appreciation and much pleasure, often with my father, Smith, Hume, Reid, and Dugald Stewart, and was really well found in the logic as well as the ethics of the day. Therefore, as both professors were by no means incapable teachers, I am still at a loss to account for the blank results of my attendance.

My apathy has been all the more incomprehensible, when I call to mind that I took readily, and with pleasure, to the somewhat kindred subject of rhetoric, though taught by a prosy professor, the Rev. Dr Andrew Brown, also a minister of one of the city churches. But Brown took an active interest in his students, was very kindly in his manner to them, and somehow contrived to draw them out. He certainly got me to work hard; so that I not only carried off a principal prize in the class, but also actually took copious notes of his lectures, which I still possess. The classes of Logic and Ethics were the only ones, during my whole student-life, in which I was unable to take interest.

Having gone through the full curriculum of study for the degree of Master of Arts, I was entitled by the rules of the University to receive the degree without examination. But that very privilege made the degree no object of ambition to the great mass of the students, and especially to the best class of them. I declined the honour when offered and even pressed upon me; and it was a common saying among us, that nobody took it but a "dominie." It is very

different now that no candidate can attain the degree of M.A. except after a severe examination.

During the period of my studies in Arts, the modern languages—as is the case still—were not the subject of instruction in the University. Although this blank has been often spoken of as a blemish in our University system, I do not see how the modern foreign tongues could be properly made the subject of a professorship, unless in connection with philology, and for students somewhat advanced in the knowledge of them. What I needed, however, was in the first instance a good "rough-rider"; and for French I found a first-rate one in the most eminent teacher of that language in the town, Louis Cauvin—son of a refugee from the French Revolution. In his youth he had been as much in Paris as in this country. Consequently, when he spoke French he seemed a thorough native of France, and when he spoke English no one could have known him to be anything else than a highly educated Scotsman. A man of ability and accomplishment, he moved in literary society. But besides all that, he was a large and successful farmer. His farm was close to Duddingston, where the soil and other agricultural conditions are more favourable perhaps than in any other district in Scotland. Cauvin, unlike most farmers of his day, kept what he made from his fields; and thus he amassed a moderate fortune, which, when he died in 1825, was left for endowing a Hospital School for the maintenance and education of the sons of decayed teachers, farmers, and master-printers. In this Hos-

pital, which still subsists close to Duddingston, twenty-six boys are boarded and trained—with what results I know not. Cauvin spent on five days a-week six hours a-day teaching in town, and the rest of the time in looking after his farm in the country: and he went to and fro on horseback, always at a hard gallop. He was a powerfully made, tallish man, with a rubicund, pimpled face, and dark, restless, fiery eyes, active, energetic, and passionate, but careful to control his anger when roused. This seemed not a very safe character to provoke or play tricks on. But he was also eccentric; and thus his pupils were sometimes enticed to try practical jokes, of which he was the subject. One of my companions had the faculty of producing a loud snap with his ankle-joint by simply bending up the foot and then extending it suddenly. Our choleric master was frequently teased with this mysterious sound, the source of which he could never detect. It saluted his ear, of course, only when his back was turned upon it; and however quickly he faced about, he was unable to discover the performer, or the nature of the performance. Once, when he seemed to have been on the watch for his tormentor, so instantaneous was his wheel on hearing the usual report, he fixed his evil eye on innocent me, muttering deliberately and emphatically between his teeth—"Prenez garde, Monsieur Christison! prenez garde!" The mistake was so natural, and the incongruity so great between the offence and the offender—who was a quiet, elderly divinity student, of demure aspect and extremely

mild manners—that I could scarce refrain from condemning myself by a burst of laughter, in which the whole class were ready to join. On one occasion the school-room chimney would not vent a bit. The whole smoke poured down into the room, and thence into the lobby. The chimney-sweeps were sent for, when down came an old hat, and at once all went right. Cauvin bolted with the hat into his library, picked up an elegantly bound quarto of fine engravings, rushed with the sooty hat in one hand and the handsome volume in the other into his anteroom, filled at the moment with young ladies waiting for the arrival of their school-hour, plumped down the book amidst them, and offered it to any one who should tell him who was "le poltron qui m'a fait cette injure-la,—la—la—la!" pointing to the guilty hat. But this appeal, as well as his other persevering efforts, were to no purpose; not even any of us pupils ever found out the culprit. During my attendance, he met with the following strange adventure. His horse —a very good one, and a great favourite—was one day stolen from the farm, and for two months there was no trace of him. At last, while Louis Cauvin was looking one afternoon into the street at things in general, he beheld the horse standing at his own stair-foot, saddled and bridled, and held by a horsey-looking lad, exactly as if waiting for him. Down-stairs went Cauvin two steps at a time, seized the horse, and collared the lad, who proved to be servant of the owner of the establishment on the floor directly under the school-rooms, one Griffith, a well-known umbrella-

maker and respectable Quaker, reputed wealthy. Cauvin had the satisfaction of riding his lost Rosinante home, and the Quaker the mortification of losing the price of his incautious purchase.

Among the accessory means of education at the University, Literary Debating Clubs, if a judgment may be founded on their number and variety, were in high fashion during my attendance on the classes in Arts and Medicine from 1811 to 1819. Long the oldest in years and reputation, the Speculative Society was at this period overshadowed for a time by the Literary Society, which arose, culminated, and sank like a comet, but was long sustained at a high pitch of excellence and attractiveness by the talents and debating zeal of the oldest class of the students and many young members of the Church and Bar. In imitation of these shining examples, almost every year the freshmen were but a short time in the University before they formed their own youthful debating club. My companions soon established the Juvenile Society, on a nucleus of one imported from West Calder, where the Reverend Dr Muckersy had formed it among the youths of his boarding-school academy. Four young Muckersys, and a few more of the West Calder forum, first associated to themselves Dr Tweedie, who afterwards settled in London as physician. Tweedie was the means of my joining; and my entrance was followed by the accession of many of my companions, who soon took a lead in the Society's proceedings. The members differed

considerably in point of age, which tended to balance the younger ones among us, and prevent our grave debates from degenerating into buffoonery. Nevertheless, accident did now and then upset the gravity of the Society's demeanour. In the middle of a keen discussion on the merits and demerits of gunpowder, a member, who had evidently been dining out before the meeting, and who kept himself to the point in a clever speech by maintaining fast hold of the back of the secretary's chair, alternately advanced and withdrew his body, to express his mind better, or perhaps because of his post-prandial condition. Happening, however, to sway back at the moment when the secretary slightly rose for a second or two to stretch over his table for a paper,—speaker, secretary, and chair disappeared instantaneously, and were rolling on the floor. There was no longer any sober discussion that evening; and ever afterwards, when any eager orator approached the back of the secretary's chair, which stood temptingly in the middle of the floor to be thumped by the eloquent, he was apt to be discomfited by a word of caution and a shout of laughter.

I never took a prominent part in the Society's business. At that time, and for many years subsequently, I had a dread of speaking in public unless from a complete manuscript. It was not till I was thirty-five that a sudden emergency divulged to me how easy it was to make a long speech or lecture without any notes at all, if one resolves to do so, and knows his subject well. Of our clever debaters, none had the opportunity afterwards of making a figure

in the world. Although they went chiefly into the Church or to the Bar, none except my twin-brother lived long enough to test the results of early training; and he, with many oratorical qualifications, was lost in a purely rural parish and presbytery as a country clergyman. One of our members went as an English barrister to India, where he gave great promise, and soon distinguished himself by bearding the Bombay Bench in some quarrel between the judges and the Bar. William Cleland, however, had fought with too much ferocity. He had consequently to shift his quarters to Calcutta, where he was making rapid strides, when he was cut down in the prime of life by the effects of the climate.

There can be no doubt of the usefulness of these young men's societies in sharpening the wits, imparting resource and promptitude, and so training youth for the learned professions. Opinion here is universally in their favour; and that opinion is borne out by the history of the oldest of the debating societies of Edinburgh, the Royal Medical. That Society has flourished since so long ago as 1737; and of its four presidents, chosen annually in the main for their popularity in debate, very few have failed to distinguish themselves in professional life, either as successful physicians, or in the walks of the medical sciences. But the good done by these societies is, if I mistake not, attended with an inseparable evil. They make some men pragmatical and offensively disputatious. I, at least, have known several of the orators and oracles of youthful debating clubs

whose acquired glibness of tongue misled them afterwards, and made them, whether in large popular assemblies, or—what is much more intolerable—in small consulting bodies, speechifying, contentious, noisy, troublesome obstructives in the real business of life; striving more for a factious victory than a good end, and dangerously given to perverting the truth.

In the course of my Arts curriculum of four years, I did not confine myself entirely to the classes in the Faculty of Arts. I studied also chemistry and botany.

I began botany in the summer of 1813. It was taught then, as now, entirely at the "Royal Botanic Garden." The garden long occupied a part of the valley between the Old and New Town, which is now covered by the city station of the North British Railway Company. One line of houses, on the south side, recalls the purpose to which the spot was originally destined. It still retains the name of "Physic Garden," though there is neither a drug sold nor a single plant grown in it. Long before my time, however, the Botanic Garden had been removed to a more genial site, on the north side of Leith Walk, a little lower down than Gayfield Square. Thence it was promoted to the present admirable site in Inverleith Row. But when I studied botany, Leith Walk had still the honour of enshrining that science. The spot seems to have been affected by a curse ever since the botanical establishment left it. For a hand-

some crescent behind it, begun many years ago, has now [1871] scarcely a fifth of its houses erected; on the old garden itself, though it has an extensive frontage on the main roadway between Edinburgh and Leith, there are only one or two miserable hovels and pig-sties; some of the old conservatory walls still stand in a ruinous state; and I can distinguish here and there, amidst general neglect, a few melancholy, ill-grown trees, which had not been thought worth removal along with their companions fifty years ago. The garden was thought very fine, however, in 1813, and many a pleasant hour have I spent in it.

The professor was Dr Daniel Rutherford,—better known as an inventive chemist in his early years, and as the discoverer of nitrogen gas, than for anything he ever did as a botanist.[1] In 1786, fourteen years after graduating at Edinburgh, he succeeded Dr John Hope in the botanical chair. Tradition had it in my student-years that he was disappointed at not being made assistant and successor to Black in the chair of chemistry in 1795, when that office was given to Dr Charles Hope; and he again, son of the botanical predecessor of Rutherford, it was said, would have preferred to step into his own father's University shoes, rather than into those of Dr Black. However that may have been, Hope, the son, highly distinguished himself in his chemical chair; while

[1] Dr Rutherford was Sir Walter Scott's maternal uncle. "He ought to have had the chemistry class," Scott writes, on the occasion of his death in 1819, "as he was one of the best chemists in Europe; but superior interest assigned it to another, who, though a neat experimentalist, is not to be compared to poor Daniel for originality of genius."

Rutherford, in that of botany, which he filled for thirty-four years, always seemed to lecture with a grudge, and never contributed a single investigation to the science which he taught. He was a little, sluggish-looking man, who, through the inroads of frequent gout, moved slowly, although not over sixty-three. He had a large, placid face, sunk between his shoulders, heavy eyes, and a great mouth and jaw, in harmony with the credit he got for being fond of the good things of the table. His words seemed to be squeezed out of his chest; and his accents and manner, unless he happened to be cross, were mild, kindly, and dreamy. His lectures were extremely clear, and full of condensed information; his style was beautiful, and his pronunciation pure and scarcely Scotch; and consequently his class—a large one, in spite of the early hour of eight in the morning, and the long distance to the garden—always listened to him attentively, and treated him with respect. He depended very much for his demonstrations in the class-room on his excellent head-gardener, M'Nab, father of the present [1871] very able holder of the same office; and he often subjected his aide-de-camp to rather rough usage by his crossness. I have seen him search his table over and over again for the specimen of his next topic in vain, and call testily to his assistant, who stood at a respectful distance,—"Mr M'Nab!—Mr M'Nab! bring me" (it might be) "the *Aconitum Napellus:* you have forgotten the *Aconitum Napellus.*" Upon which M'Nab would quietly step up to him, lift the plant from under his nose, put

it into his hand, and step back to his place, without a word said or the slightest change of countenance. The doctor had a detestation of foul smells, yet was fascinated by an irresistible necessity when an ill-smelling plant came in his way. "Gentlemen," said he one day, "this is the henbane plant,—the *Hyoscyamus niger* of Linnæus. It is known by," &c., &c. "It may be also known by a very peculiar, disagreeable odour,—a most offensive odour." Whereupon, raising the nosegay to his nostrils, and whiffing it slightly, he went off in a fit of spasmodic movements as if choking, and called out with a cross air, "Take it away, Mr M'Nab! take it away!"

Nevertheless I liked the little Doctor, got very fond of botany, and have often dabbled in it since with pleasure. But it was a great blot in his teaching that he gave no encouragement in any way to practical training in the field, which has been steadily and successfully pursued by his successors—Graham and Balfour—for fifty years past. Inability from gout may be the explanation; for, had he been desirous of carrying on field instruction, his disabled limbs would have prevented him from doing so in person. But why should he not have done that duty by deputy — especially when he had so able a henchman as M'Nab? In absence of such an instructor, several of us botanised under our own guidance over hill and dell, rock and river; and many a modest weed became a lovely flower in our eyes under investigation, identification, and display in our herbariums.

No study interested me more during all my

student-days at the University than that of chemistry. At this period—1814—not long after the discovery of the composition of the alkalies by Davy, chemistry, while it held out a boundless field for inquiry, was already rich alike in grand facts and great principles. Nevertheless it was not yet so extensive and recondite but that an amateur might master it all by attendance on a six-months' course of lectures and a little private study. Such a course of lectures could be made eminently attractive, and Dr Hope possessed in a high degree the qualifications required. His manner and his diction were, indeed, somewhat pompous. But pomp did not altogether misbecome so magnificent a subject; and such violation of correct taste as might strike a fastidious ear, was more than counterbalanced by uncommon clearness of exposition, and unexampled splendour and success in experimental demonstration. To be visible to a class of 500 students (in 1823 he had 575), his experiments required to be performed on a very large scale—which every one conversant with experimental lectures knows must increase greatly the difficulty of exact manipulation. Nevertheless, when I first attended Hope in 1814, there was not a single failure to attain exactly what he announced; and on repeating my attendance in 1815, he failed once only.

That failure, indeed, was an egregious one. In order to show the great cold produced by snow melted by nitric acid, he used a large inverted glass bell-jar instead of a strong-footed one, his usual apparatus. The powerful cold at once froze the surface

into a firm spongy cake. Endeavouring to break up this covering with a heavy glass rod, the rod suddenly plunged through the consolidated mass, and through the bottom of the jar also. The acid—now, fortunately, diluted acid—overflowed the table, and gushed over the Doctor's then fashionable black stocking-piece tight pantaloons, which instantly, "like lobster boiled, from black to red, began to turn," amidst shouts of student-laughter and a hasty retreat on the part of Dr Hope in quest of ammonia to repair the damage.

Dr Hope, although he showed in early life skill as an analyst and ingenuity as a discoverer,—as shown in his discovery of strontia, and his inquiry into the temperature of water at its maximum density,—seems to have abruptly and unaccountably deserted the tempting field of chemical research, and devoted his whole professorial life to perfecting his admirable class experiments. Neither did he encourage experimental inquiry among his students. His laboratory was open to no one but his class assistant, Dr Fyfe, afterwards "Professor of Medicine"—that is, of all the medical sciences—in King's College, Aberdeen. There was at that time no opportunity for students to learn chemistry practically, either at the great chemical school of Edinburgh, or, indeed, anywhere else in the United Kingdom. Syme, my twin-brother and I, Andrew Coventry, Alexander Jackson, Robert Mercer, James Hogg, and five others, therefore formed for the purpose a Chemical Society, which met once a-week in the evening, and performed and demon-

strated such of Dr Hope's experiments as were within our means. We met first in an attic in my father's house in Argyll Square, and afterwards in a large underground room below the shop of one Deuchar, subsequently a lecturer on popular chemistry. At starting we got our chemicals from a druggist opposite the present College gate—the successor of a Dr Briggs, who, I remember, used to sell me his nitric acid himself some years before for sixpence an ounce. Briggs became mysteriously Professor of Medicine at St Andrews University, where the only drug sold—by the sole medical professor, sinecurist, and autocrat in all things medical—was the diploma of Doctor of Medicine, for thirty guineas and two certificates of character from medical men.

I cannot call to mind that our "Chemical Society" set out with a defined object or a settled limit in our experiments. But what it actually did was to repeat such of Dr Hope's class-experiments as struck us by their splendour, or their importance, or their surprising results, and were within the reach of the Society's finances. We neither made nor aimed at discoveries. But we learned aptitude in handling apparatus, resource in difficulties, and, I may also add, promptitude in danger. At least I am sure I did; for when in later years my chemical fervour broke out at Paris in a determination to master the higher walks of chemical analysis, I experienced at once a familiarity and success in manipulating, which most assuredly I could not have enjoyed without serving my apprenticeship in the Chemical Society. We had no written

code of laws, like other juvenile associations of the kind. But our rule was, that each member should be experimental demonstrator in turn; that another should be his assistant; and that the assistant of one meeting should be principal at the next. It is strange that the events which dwell chiefly in my memory are our failures and escapades. In two of these I was chief actor. One evening, during the time when we met in my father's attic, and it was the turn of Jackson and myself to perform, we proceeded to kindle our "choffer" in preparation for the meeting. The coke not kindling quickly enough, Jackson inserted a good many sticks to help the combustion, whereupon there arose so profuse a discharge of irritating wood-smoke from the half-kindled sticks, that we were threatened with suffocation. But we did not venture to open the door for ventilation, because there was a dinner-party in the house, which would have been thrown into consternation had the wood-smoke gone down-stairs—as it was sure to do. On the contrary, we locked ourselves in, pulled a chair under the sky-light, put a box on the top of it, mounted the box, opened the sky-light window, and stood with our heads and shoulders in the fresh air. At this juncture the Chemical Society arrived, and claimed admission by various boisterous measures. Meeting, however, no attention from within, and discerning through a chink in the door that the room was full of smoke, they became alarmed for their president and his assistant. But ere long they received reassuring information: the atmosphere of the attic was

cleared, the performers descended from their perch and admitted the audience; and the "choffer," by this time having got up a bright glow, got through its part in the performances of the evening.

The other event was a more startling one. Syme and I had to demonstrate the preparation of sulphuric ether. Our apparatus was on a pretty large scale, and it depended for its stability on the mutual reliance of the retort and receiver on one another. Following Dr Hope's example, we heated the retort before pouring in the spirit and acid. But having, as I suppose, heated it too much, the materials were no sooner introduced than they began to froth up furiously from the formation of inflammable gases instead of ether; the stopper was blown out of the retort, and the gases and vapour rushed with a loud hiss to the ceiling. Instantly I dreaded the formation of an explosive atmosphere, called upon the Society to adjourn, and shouted to Syme to blow out the candles on his side of the table, whilst I did the same to those on mine. One of Syme's was so near the active volcano, that he hesitated to approach it; upon which I made a long mouth, and was lucky enough to extinguish it from a distance. In another instant I was under the table — where, however, there was no room for Syme also. The Society not only vanished as advised, but likewise closed the door for their further security, and awaited the issue behind it. The fizzing of the retort got quickly worse and worse, a tug-tug-tugging sound followed, and the apparatus blew up with a crash of

falling glass in all directions. A brief interval of silence ensued, and then the Society, cautiously opening the door, inquired if anybody was hurt. Having received a favourable report in reply, Mr Deuchar appeared with a Davy's safety-lamp; and it was found that the retort had been blown to the farthest corner of the cellar, twenty feet off, where Syme had fled for protection—bending down with his head well in the corner, and the least vulnerable end of his body presented towards the enemy. The retort had been shivered to pieces against the wall close to his ear.

Dr Hope, with all his ability as a teacher, made very few chemists, because he never encouraged practical study. I do not know that our Chemical Society was more successful. It did not turn out any original investigator; but it very nearly made a chemist, instead of a surgeon, of Syme. Before it came to an end by the dispersion of its members, he had begun to work at the subject of the solvents of india-rubber; and his inquiries ended in his discovering its solubility in the cheap menstruum, coal-tar naphtha, and the waterproofing of cloth by means of this solution. He published his discovery, at a very early age, in vol. xii. p. 112, of Thomson's 'Annals of Philosophy,' 1818. Nevertheless he has never got the credit of this discovery. Macintosh, the manufacturing chemist, reaped all the honour as well as the profit. It might have been otherwise had Syme stuck to chemical research, for he showed himself afterwards in a different line to be most tenacious of what was truly

due to his inventive mind. But, notwithstanding his early success, he abruptly deserted chemistry—how led, I could never learn—and betook himself ardently to anatomy and surgery, which he never afterwards for a moment forsook as his main pursuit.

I have often been puzzled to make out the principle which, in such cases as that of Syme and Macintosh, rules in this country the legal relationship between a genius who makes a discovery and a patentee who appropriates it to his own sole pecuniary advantage. Macintosh somehow was allowed to snuff out Syme altogether. But in many other instances the discoverer and the patentee are recognised as distinct from first to last; and the distinction has often given rise to costly contests about one another's rights. What, then, is the principle upon which a patentee is enabled to create an exclusive right to the profits of another's discovery? In other words, when a patentee is not the original discoverer, what constitutes a patent? Judges have often tried to lay down a law which may answer that question, but never so as to satisfy my mind, or so as to prevent afterwards any valuable patent from being disputed. Consequently, one is almost driven to the sore conclusion that the only sound rule for constituting a patent is that it shall undergo an expensive lawsuit and the favourable verdict of a jury.

Some years ago, however, I got a glimpse of a fixed principle for governing many cases. Mr James Young —"paraffin-oil Young"—in order to defend, against formidable encroachment, a patent by which he was

rapidly making an enormous fortune, had to engage in the most tedious and expensive lawsuit which has hitherto occupied the minds of Scottish judges. The essence of his patented process was that paraffin and paraffin-oil were prepared from petroleum, coal, and bituminous shale by careful maintenance of the lowest red-heat at which decomposition can be effected, and by the studious avoidance of that slightly higher red-heat at which decomposition gives rise chiefly to naphtha and illuminating gas. Mr Young discovered neither paraffin nor paraffin-oil (another name for eupion); nor their production from shale, coal, or petroleum; nor the temperature at which paraffin and paraffin-oil are formed; nor their utility for giving light. What he did discover, or rather invent, was a series of contrivances for obtaining the two products so economically, that they could compete in cheapness and convenience with other means of illumination. His patent, therefore, always appeared to me to rest on rather narrow ground. One evening, while the action was going on daily, I dined at Professor Lyon Playfair's, with a whole cloud of chemical witnesses on both sides of the suit. After dinner I joined in the drawing-room a knot of them, who were discussing with Young himself the bearings of the patent law on his case. After some time I struck in, and said: "Mr Young, I now for the first time understand, from the conversation which has been going on, what constitutes a patent: when a man, for the first time, is making a great heap of money with a new article, that constitutes a patent." There was a

general laugh, to which Mr Young added his quiet smile, and replied: "Well, there is a great deal of truth in your definition, only I would word it differently: a patent is constituted when a man first makes a new article marketable."

This is a plain, intelligible principle. But is it as just as it is plain—as reasonable as it is intelligible? I do not think it is. It appears to me that in equity, as well as in the interests of science, an original discoverer ought to be legally entitled to a certain hold over the fruits of his genius and labour; that especially his generally rather empty pockets should have a claim to some modest share in the profits accruing from the first successful development of his discovery in the hands of some practical monopolist who is rapidly making a fortune with it.

CHAPTER III.

UNIVERSITY—EARLY MEDICAL STUDIES.

CHOICE OF PROFESSION—MONRO—FYFE—BARCLAY—DUNCAN—HOME—ABERCROMBY—GREGORY—HAMILTON—RUSSELL—JAMESON.

When the opening of the University Session of 1815-1816 was close at hand, my father one day signified to me that it was time for me to choose a profession, and shape my future studies for it. I had never thought much on that subject, but at once replied that my own choice would be civil engineering. He said I had chosen well, if he could have placed me as pupil with an engineer of eminence, but that he had no access to such a situation, and did not approve of my entering a mediocre office. He therefore advised me to think over the question again. I replied that in that case I did not require farther consideration, being ready to betake myself to medicine. He gave his approval, and thus, in two minutes at most, was my profession chosen.

At that time, indeed, as the great French war was only just concluded, engineering was rather a flat pro-

fession in this country. There were few great works going on, and there were not many able engineers. Stevenson of the Bell Rock, and Jardine of the Edinburgh Water-works, filled up the list of men of note practising in Scotland; for Telford, although occupied with many important works in the north, had by this time removed his quarters to London. But soon afterwards engineering made a prodigious start; so that, had I taken to it, as I desired, I should have been ready not long before the demand for trained men exceeded the supply. What if I had stood out for engineering?

In November 1815 I matriculated as a medical student, and took my seat well forward in the anatomical theatre as a pupil of Alexander Monro, *tertius*. My earliest recollection of my new existence is of horror at beholding from a short distance, and for the first time in my life, a dead human being, and of an anxious longing for the close of the Doctor's first lecture. I well remember, too, my constant disgust at the odour of the anatomical theatre; and indeed I have never, in all my professional days, got over my repugnance to the emanations, whether anatomical or pathological, of the human "subject." This may have been owing to what has proved a useful endowment in other circumstances—an acute and discriminating sense of smell. But at any rate the same possession has been a sad annoyance to me in the pursuit of anatomy and pathology—such even as to have often required a strong sense of duty to encounter it.

Monro was far from being a popular lecturer. In all he did and said his manner betrayed an unimpassioned indifference, as if it were all one to him whether his teaching was acceptable and accepted or not. I have often since feared he must have felt himself somewhat in the forlorn plight of the middle one of the three painters of the French family of Vernet, who complained that he was "écrasé entre mon père et mon fils." The three Monros filled the anatomical chair in Edinburgh for 126 continuous years, and the first two of them, as all know, with renown. The third must have felt the fame of his father and grandfather a great load upon him as their successor. And so, indeed, it appeared as if he did. Yet he lacked neither ability nor accomplishments. But apathy in a teacher cannot stir up enthusiasm in the student. A lecturer who seldom shows himself in his dissecting-room will scarcely be looked up to as an anatomist. A professor careless about dress must lay his account with being made the subject of many a student's joke. It is no wonder that, with such weaknesses, he lost command of his class, which in his latter years became the frequent scene of disturbance and uproar. Nevertheless Monro gave a very clear, precise, complete course of lectures on anatomy when I attended him; and certainly I learned anatomy well under him.

Andrew Fyfe, his prosector, one of the last in Edinburgh to wear the pig-tail, was my teacher of practical anatomy. Practical students in those days were not numerous, and "subjects" were plentiful.

I believe I made fair use of my opportunities; and the good old Fyfe took care of this, by going every afternoon, attended by all his dissectors, over what each had done with his "part" during the day, and making us demonstrate our work. Duty over, we all gathered round him at the fireside, where he entertained us with anecdotes of the departed medical worthies who had adorned the University or city in his day. Monro himself seldom appeared among us in the dissecting-room.

I studied anatomy another winter under Dr John Barclay, as was then the universal student-fashion. Extra-academical lecturers may now be counted by the score in Edinburgh. At that time there was but one—Dr Barclay;[1] but a remarkable one he was. Lecturers, not professors, were not then known by their present sesquipedalian designation. They were simply "private lecturers," until in more recent times an after-dinner incident rendered the title suddenly unendurable. At an annual dinner of the Royal Medical Society, at which Professor Wilson of "Noctes Ambrosianæ" celebrity, was a guest, with several others, he was asked, rather late in the evening, and when in one of his unbridled, frisky moods, to propose the health of "the private lecturers on medicine, coupled with that of Dr Henderson" (afterwards Professor of Pathology); to which he assented with a grumble. "Mr Chairman," said he, "I am asked to propose the health of the private lecturers—I know not why! and of Dr Henderson—I can't tell where-

[1] See *ante*, p. 6.

fore! Sir! because I see across the table a tall gentleman, with a very long nose, and I am told he belongs to the private lecturers, must I on these accounts propose that we shall all drink his health? Private lecturers! — very private — nobody goes to hear them," &c. Henderson was weak enough to take the quiz very sorely, and Wilson was the cause of all such lecturers becoming "extra-academical" instead of "private."

But John Barclay was no private lecturer in the Wilsonian sense. He was a little, strong, finely made man, with a large round head, bright eyes, humorous mouth, and an intelligent, speaking expression, even in repose. His whole life and soul were in his profession, and with his students. He delighted to spend the whole day in his museum, dissecting-rooms, or lecture-hall, working with his pupils and assistants as diligently as the best of them. As a lecturer, he was all fire and zeal, and intent that his students should learn. His lectures were lightened by historical interludes, little strokes of humour too, and sometimes a witty anecdote. Barclay, indeed, was one of the wits of Edinburgh, of whom it is surprising to me that, among his many intimate friends and favourite pupils, no one has found it to be a labour of love to preserve his "Barclayana." Take this one, for example, introducing his demonstration of the sphenoidal bone,—a bone which every beginner finds complex and hard to master, and which, therefore, one makes it a point to possess, by fair means or foul, complete in all its numerous

holes and processes. "Gentlemen, I now hold in my hand the sphenoidal bone. This bone is a complicated one, and will need all your attention. The early modern anatomists called it *alæ vespertilionis*—bat's wings. I was long at a loss to discover why, because you see it has little resemblance to a bat." (Begging the Doctor's pardon, it has such a resemblance; but he denied it for the sake, I presume, of getting in his joke.) "At last when my students became too numerous for my former class-room, so that I was obliged to divide them, and to repeat my lecture in the evening, and being then in the custom of passing my specimens round for each to examine for himself, I found, when I sent the sphenoidal bone round my evening class, that it always disappeared before morning." Or this: "Gentlemen, while carrying on your work in the dissecting-room, beware of making anatomical discoveries; and above all, beware of rushing with them into print. Our precursors have left us little to discover. You may perhaps fall in with a trifling supernumerary muscle or tendon, a slight deviation or extra branchlet of an artery, or perhaps a minute stray twig of a nerve,—that will be all. But beware! Publish the fact, and, ten chances to one, you will have it shown that you have been forestalled long ago. Anatomy may be likened to a harvest-field. First come the reapers, who, entering upon untrodden ground, cut down great store of corn from all sides of them. These are the early anatomists of modern Europe, such as Vesalius, Fabricius, Fallopius, Malpighi, and Harvey. Then come the gleaners, who gather up

ears enough from the bare ridges to make a few loaves of bread. Such were the anatomists of last century,—Valsalva, Cotunnius, Haller, Winslow, Vicq d'Azyr, Camper, Hunter, and the two Monros. Last of all come the geese, who still contrive to pick up a few grains scattered here and there among the stubble, and waddle home in the evening, poor things, cackling with joy because of their success. Gentlemen,—we are the geese."

The late botanist Greville was a favourite pupil, and also, from being older than his comrades, a great friend of Barclay. One day he was much elated by the addition he had made in his last botanical ramble of a rare species to the flora of the Edinburgh district. "Is it a beauty?" inquired Barclay. "I cannot say so. It is a small, rather inconspicuous plant, with a greyish-green flower; but it is rare, and not easy to find." "It appears to me," rejoined Barclay, "that the great merit of a botanical discovery is its difficulty." "I cannot altogether deny it, Doctor. Difficulty gives zest to the search, no doubt." "Well, then, Mr Greville, when I was a little boy, and was sent one day across the moor with two sixpences to buy my mother some worsted thread, I sat down by the way, and taking out the two sixpences to play with, I let them drop among the heather. I recovered one, but not the other, and had to leave it, crying bitterly over its loss all the way home. I recommend you to go and look for it. I am confident it is there still; and it will be hard enough to find."

Barclay was the same bright, humorous man in

general society, of which he was the life wherever he went. He was member of an "Argyll Square Club," consisting chiefly of literary men, of whom my father was one. The club met in succession at one another's houses, where a paper was read by the entertainer of the evening; and afterwards, at the supper-table, the members were joined by their ladies, and sometimes by a visitor also. In 1819, during the stormy "Radical" times,—when Reform, first rearing again her head after the French Revolution, was called sedition, and Manchester, Glasgow, and other manufacturing towns, believed to be at the brink of insurrection, were occupied by powerful bodies of military,—Professor Mylne, professor of Moral Philosophy in the University, delivered a discourse there which was thought to sail much too near the wind for the time, the juncture, and the place. Many wise folk here and in Glasgow shook their heads over it, and Crown counsel were said to meditate an indictment. But the storm blew past, and Mylne escaped unscathed. While it blew loudest, Mr Cleghorn, a Glasgow relative of Mylne, happened to be a visitor of the club, when it met at Barclay's house. During a pause in general conversation, he asked Barclay what was thought in Edinburgh of "the infamous charge of sedition that had been made in Glasgow against our friend Professor Mylne"? It was a rash question for a Whig to put at that precise period at a party composed of Tories; and naturally there was much curiosity as to the reply of Barclay, who was fairly driven into a corner by the querist. But Barclay was just the

man for the emergency. Without hesitation he at once said: "Mr Cleghorn, when the Olynthians sent ambassadors to Philip, King of Macedonia, complaining that his subjects were in the habit of calling the Olynthians liars, thieves, robbers, assassins, and what not, Philip replied to the ambassadors: 'O Olynthians! never heed my Macedonians. They are a pack of fools. They will always be calling things by their right names.'"

Barclay, when I attended his lectures, had collected a considerable museum of human and comparative anatomy, now part of the Museum of the College of Surgeons of Edinburgh. Among other objects, he had a good collection of skeletons, at the head of which stood an elephant, the gift of the late Sir George Ballingall, one of his former assistants. With these appliances, Barclay undertook a summer course of lectures on Comparative Anatomy, which I attended. But instead of turning to account his collection of skeletons, the Doctor, whose favourite branch was the muscular, descanted during almost the whole summer on the muscles of a donkey, which became a great deal too much of a nosegay in the dog-days before he was done with it. He repeated his lectures the next summer only. But his enterprise suggested to his numerous friends that it might be well to attempt the foundation by the Town Council of a professorship of Comparative Anatomy for him in the University. The project was supported by some members of the Senatus Academicus, but was vehemently opposed by others, especially Hope, Jameson, and

Monro,—by the last two because each claimed Comparative Anatomy as belonging to his chair, although neither had ever taught it. This contest was made the subject of a clever caricature by the famous Kay. Barclay, bestriding the neck of his skeleton elephant, is clearing by force the College gate, encouraged, or resisted, by various professors. Jameson confronts him with the objection—"Bar-clay? There is no such *clay* in the nomenclature of Werner;" and Hope is in the act of falling, from the breaking of a rope with which he is holding back the elephant by the fore-leg, while above him is the intimation—

> "Hope is lost, the rope gives way,
> And Muscular Motion gains the day."

The elephant did not get through the College gate, however; nor is there even yet a professorship of Comparative Anatomy in the University.

Becoming infirm in his old age, Barclay took for a colleague the notorious Dr Robert Knox,—a man, like himself, of great talent, but in point of worthiness of character his opposite in many essential respects.

I had now studied Botany, Chemistry, and Anatomy. In order to become a candidate for my degree, there were required besides in those days only the Theory of Physic, Materia Medica, Practice of Physic, and Clinical Medicine.

The Theory of Physic, or Institutes of Medicine, was then taught by Dr Andrew Duncan, senior—an aged, most amiable, benevolent, but by this time rather feeble-minded man. He chose in his lectures

stare super vias antiquas, and, "by some devilish cantrip slight," contrived to make it appear as if the physiology, pathology, and therapeutics of Gaubius and the previous century were the physiology, pathology, and therapeutics of the present day, and the existing doctrines those of the historical past. Little, therefore, was to be learned from him. But he was so kindly and warm-hearted a man in manner, had done so much practical good in his day, and was so attentive to his students, whom he invited in succession once every week to a dull enough tea-and-talk party, that he was universally respected, and respectfully listened to.

Three years after my attendance the chair was rendered more efficient by the appointment of Dr Duncan's son in 1819, and afterwards of Dr Alison in 1821, as conjunct professor and successor. But the old man did much of the duty, and stuck to the professorial flag till the year 1828, when he died in his eighty-sixth year.

In Materia Medica my instructor was Dr James Home. Dr Home was then popular as a lecturer, with a class-room so crowded every morning in the dark winter season, that notwithstanding his early hour of 8 A.M., some twenty students had to stand. Such testimony may surprise those who know that, when translated in 1821 to the Chair of the Practice of Physic, he failed from the first as a lecturer, and lost eventually all hold on the attention of his students—his class-room becoming a scene of negligence, disrespect, noise, and utter confusion, for

a few years before his death in 1842. But in his first chair, although the lectures were not enlightened by well-defined general principles, or illustrated as now by experiment and demonstration, or enlivened by any of the flowers of oratory—they were a mine of useful facts, laboriously collected, sifted with care, and well put together. His delivery was quiet, but earnest; and his whole soul was evidently in his duty. Moreover, he gave much of his time to examining at an extra hour such of the students as were willing to undergo the trial—a voluntary task, which at that time few professors undertook. The students, therefore, could not fail to see that their professor was devoted to their interests; and this, I imagine, is a main element in the success of a teacher.

It was a great mistake, however, in Dr Home to change his professorship at the age of sixty-three. It was a double error to take the place of so consummate a professor and so eminent a physician as Dr Gregory. But if it was a mistake on Dr Home's part to desire translation to the Chair of the Practice of Physic, it was a greater one for the patrons of the University, the Town Council of the city, to translate him. A keen, bitter struggle arose for the vacant professorship. Dr Home's recommendation was his popularity and success as professor of a kindred subject; that of his chief rival, Dr John Thomson, was deserved celebrity as a man of general professional talent, together with more credit as a teacher than his subsequent performance as Professor of Pathology showed that he was entitled to. There was a third

candidate in the field, however, of superior merit to both. Dr Abercrombie had recently exchanged an overwhelming general practice for that of a consulting physician, in which he quickly reached the first rank; and he had already given public and pregnant proof by his writings of high ability as a pathological inquirer. But he had not a vestige of a chance with such patrons as our Town Council, who at this time held the patronage of more than half the chairs in the University. Rising fame and high promise were qualifications which could not move, or even reach, men in their position. Politics, when admissible into an election, always ruled it. No duty was so attractive to them as a political fight; and there was a choice opportunity in the appointment of the new Professor of the Practice of Physic, because Home was a pure, though gentle and unobtrusive Tory, while Thomson was a combative, prominent Whig, and at one time somewhat more than a Whig. The Tory candidate won the day. But he parted with his popularity in the University, and did not attain the success as a physician in the city, which he expected to acquire by translation.

It was, indeed, a hazardous undertaking to fill the chair of Dr Gregory. For although well advanced in years, he was cut off in the full possession of his faculties, and of his fame as a lecturer of the highest order. His features, excellently preserved in the bust by the sculptor Joseph—his expression, voice, and manner,—all betokened the vivacity, self-reliance, boldness, and determination of a powerful intellect. Equally in

fluency as in choice of language, he surpassed all lecturers I had ever heard before. His doctrines were set forth with great clearness and simplicity, in the form of a commentary on Cullen's 'First Lines of the Practice of Physic.' His measures for the cure of disease were sharp and incisive. In acute diseases there was no *médecine expectante* for Gregory. He somehow left us with the impression that we were to be masters over nature in all such diseases—that they must of necessity give way before the physician who is early enough and bold enough in encountering them. With such a union of attributes, precept and preceptor could scarcely fail to captivate a youthful audience.

The consequence was that Gregorian Physic—free blood-letting, the cold affusion, brisk purging, frequent blisters, the nauseating action of tartar-emetic—came to rule medical practice for many years, in all quarters throughout the British Islands and the Colonies. For Edinburgh had long been the only medical school of fame and resort in the British empire, whither students flocked from its most distant regions; and Gregory, who greatly maintained the celebrity acquired by it as a school of physic in the time of Cullen, had taught the Chair of the Theory of Physic for fourteen years, and that of the Practice of Physic for twenty-seven years more; so that, in the result, England and Ireland, as well as Scotland, together with our colonial dependencies, were overrun by his disciples and his doctrines.

When Gregory walked he carried a stout cane, which never touched the ground, but was held over

the shoulder, or "at the trail," as if ready for action, and significant of combativeness. At the commencement of his course he bowed, hat in hand, and his first salutation was an apology, and request that he should be allowed to wear his hat, which daily afterwards formed an integrant part of the lecturer. His peroration was not less unusual than his exordium. He never got through more than two-thirds of his full subject, varying the omitted portion on alternate years, but treating always of fevers and inflammations — his favourite topics. When I attended his class, he had, in the last day of the session, got so far as the pathology of paralysis, when, in the middle of a sentence, the College bell was rung at ten o'clock. The whole students at once sprang to their feet, according to custom, to rush to the Chemistry class. Gregory stood up too, raised his arm, and called out, "Stop! stop, gentlemen! Stop! stop!—one word at parting!" But no one stopping, he shouted, "Well, well! God bless you all!" Such was his farewell to his class of 1817.

When in his previous chair, he wrote his 'Conspectus Medicinæ Theoreticæ'—a model for perspicuity, exactness, completeness for the time, and classical elegance. It was for a long time a standard work for examination in Latinity at the various medical examining boards of the kingdom, and was adopted as a text-book even at some German universities. Its extraordinary success, however, did not tempt him to any new effort of author-craft in his second chair. At least I cannot so designate his great quartos of con-

troversy about infirmary management,—very clever, no doubt, but biting, personal, and surely a misapplication of the genius of Gregory, unworthy of his social as well as professional position, withdrawing him from fitter and nobler pursuits, and involving him in deadly, lifelong feud with many estimable brethren, both in and beyond the University.

From careful notes I took of his lectures, I see he was in advance of his time, and had anticipated sundry pathological and therapeutic principles, which in the present day are claimed as the discovery of "Young Physic." In treating of blood-letting in fever, which was about to break out as a mania with our profession, he briefly but emphatically cautioned us that it does not answer at all in some types of epidemic fever. While advocating a low diet and other antiphlogistic remedies in the treatment of pulmonary consumption at its commencement, he allowed that there were cases which required to be treated in the opposite way; and he urged that, at a more advanced stage, a liberal dietary, comprising animal food, was the advisable remedy. In his notice of acute rheumatism, he condemned the common notion of his day, that it was not a disease attended with danger, and went far towards laying down the subsequent discovery that it was apt to develop inflammation of the heart. I could quote other similar proofs of his acuteness as an observer. But perhaps enough has been said on that head; and I may give a better idea of the interest and elegance of his instructions, by mentioning one of those anecdotal references with which all suc-

cessful lecturers like him are in the habit of occasionally lighting up the more severe parts of their discourses. The anecdote relates to the course followed by "influenza," or, as he termed it nosologically, "contagious catarrh."

"Contagious catarrh has been known to prevail over all Europe, a great part of Asia and Africa, and even over America, in the course of the same contagion. There is no disease perhaps which has travelled with such rapidity, or spread so universally. The time when I first became acquainted with it was in 1775. In the autumn of that year I met with it when I was in Italy. When on my way home I saw it in Genoa, the south of France, the north of France, in London, and, last of all, in Edinburgh. Several of my acquaintances had it in Italy; but I escaped it, both there and elsewhere, till I came to Edinburgh, and there I caught the contagion. In that year it was fatal to many people, especially the old and infirm. It was heard no more of for several years. In 1782 it appeared in this country again, and was traced distinctly as having come from Russia. It broke out in summer, spread southwards, and soon travelled anew over the whole of Europe. The disease of 1775 came decidedly from the south of Europe, and had been traced back from Sicily to the African shore of the Mediterranean. It appears to have broken out somewhere on the north and west coast of Africa, whence it spread not only north into Europe, but likewise eastward to Arabia, Egypt, Syria, Palestine, Asia Minor, Persia, Hindostan, China, and was ascertained to have spread over the whole immense empire of the Chinese. From China it returned westward by a northern route through the extensive dominions of Russia, and from that country it was sent again over Europe in 1782. The epidemics of both years were probably, therefore, the same.

"It was at its second appearance, in 1782, that it came to prevail most, and to attract much of the attention of the medical world. During that year it seems that no less

than three-fourths of the inhabitants of Great Britain were attacked by it; and in many large families not a soul escaped it. Of an extensive family, where I stayed when I had it, the only one who was not seized with it was an old drunken cook-maid. I had occasion to visit an Excise-cutter, where, out of a crew of forty-five men, only one escaped. In some of the great houses of London, scarcely one of a numerous household was left able to make barley-water or water-gruel for the rest of the family. But the most remarkable instance I have heard of its rapid progress occurred in our fleet, which was watching the Dutch ships in the Texel. I received the whole account from the lieutenant of a 64-gun ship, which was one of the British fleet. The whole fleet was in excellent health and spirits, when a cutter arrived from the Admiralty, and the signal was given for an officer from each ship. An officer was accordingly sent, with a boat's crew, from every vessel, and returned with orders, carrying with them also, however, the influenza. In the lieutenant's ship, whose crew consisted of 525 men, he was one of two who alone escaped it, and the other ships scarcely fared better. Very early one morning the look-out frigates gave the signal for a fleet in sight. The seamen immediately sprang to quarters with alacrity, and the fleet was cleared for action, for the Dutchmen were as numerous and as strong as they, and would naturally seize the favourable opportunity when their antagonists were scarcely able to oppose them. This state of courage and activity continued for a short while. But the men soon began to drop down beside their guns, completely exhausted; and the officers, themselves hardly able to stand, found, on making their rounds, the seamen lying extended on the deck, with their heads resting on the guns which they had to defend. As the day dawned, the supposed enemy drew near, and was discovered to be an innocent fleet of British merchantmen under convoy from the Baltic. Although the helpless state of the British fleet was well known in Holland, no attempt was made to molest them, and for a very good reason, for the Dutchmen were in no better plight themselves. The state of

feebleness brought on by that epidemic was most extraordinary, and frequently formed the first symptom of its invasion. Many a stout young soldier, when he went to parade in complete health, dropped down suddenly in the ranks in a state of perfect exhaustion. The epidemic raged most violently in July, the season of haymaking; and I have been told of the haymakers attempting to struggle with their sense of fatigue, but being obliged in a few minutes to lay down their scythes and stretch themselves on the field."

Instructed in the practice of physic, I proceeded to clinical medicine, having previously "walked" the surgical wards of the Infirmary for a twelvemonth. During the period of my studies clinical medicine was taught in rotation by Dr Duncan, senior, Dr Home, and Dr Rutherford. I did not attend Dr Duncan's course; but, like other students, I dropped in occasionally, during my first hospital year, at his clinical visit, after the surgeons had finished theirs. It so happened that several times in succession I found the old Doctor in the act of proceeding to the same bed, that of one Christian Jack, plainly a familiar holdfast, long past yielding any new clinical instruction. At that time the clinical professors informed the students of the daily progress of each patient by giving out at the bedside a report so leisurely that it could be written in a case-book. The regular unvarying tale with Christian was this. In the act of quitting the previous bed, the Doctor called out her name, and then, stooping down beside her, interchanged with her a few mumbling sentences, in an exceeding sorrowful tone on her part—next stood up, and gave out: "Christian Jack.—As yesterday.—Continuentur medicamenta."

I soon tired of Christian, her stagnant state and her unvarying physic. But I subsequently attended the clinics of Home and Rutherford diligently. It is strange, however, that the only special recollection I retain of the clinical ministrations of either professor is, that Home was fond of the cold affusion in fever and scarlatina, and taught us to pay great attention to thermometric observations in simple and eruptive fevers; and that Rutherford, as he was always apt to suspect the girls in his female ward of shamming, used to dose them with a few drops of asafœtida tincture every hour, until they announced themselves to be well enough to be discharged, although not seldom they were really ill. But I must have picked up a great deal of practical knowledge from my two teachers, especially from Home, otherwise I should not have been so familiar with disease, and so self-reliant, as I felt myself to be when I suddenly became resident physician's clerk towards the close of 1817.

Besides the foregoing imperative studies for graduation, I attended Midwifery, Clinical Surgery, and Natural History.

The Chair of Midwifery was filled by Dr James Hamilton, son and successor of Dr Alexander Hamilton. Dr James was a little man, frail-looking, but strong, uncommonly fair, not at all comely, and undeniably wigged. He had a quick, short, nervous step, and a slight stoop and downward look, as if his eyes took account always of what his feet were doing. His voice was harsh, and his intonation Scotch, pure

and unsophisticated. Nevertheless he was a man of great energy and alertness, and a powerful lecturer. His delivery, though plain, was forcible and easy; and his information was inexhaustible, drawn as it was from stores of vast experience, as long the acknowledged head of obstetrics in Scotland. His personal means for teaching were in fact so unbounded, that he had scarcely to seek for resources in any other treasury but his own. Nor did he—unless to criticise. As a critic he seemed to be in his favourite element; and a snarling, unfair, unfeeling critic he was. For Dr Hamilton was always in the right—dissentients ever in the wrong; so wrong, too, that no terms were to be kept with them. His language was apt to be unmeasured. Whence quarrels arose—personal quarrels—one particularly with Dr Gregory, which was wound up by that formidable belligerent with "the cane,"—not thereby ended, however; for the law was called in as thirdsman, and inflicted a fine of £100 (I think), which the culprit, in paying, offered to double, it was said, for another opportunity.

Dr Hamilton delivered a three-months' course of lectures thrice annually, and maintained, with the help of friends, the "Lying-in Hospital" as a school for practical instruction. He was therefore a zealous professor, and his zeal met with its reward; for, although midwifery was not one of the subjects attendance on which by lectures was required for graduation, his courses of instruction were followed by crowds of students, who prized them highly for

the information they conveyed, and not less, I fear, for the criticism and pugnacity with which his information was spiced. I doubt, however, whether they carried away with them the respect with which they were inspired for Hope, Jameson, and Gregory. I was one of Hamilton's attentive students so long as I had only to listen to lectures; but a very brief experience of the Lying-in Hospital thoroughly disgusted me with midwifery.

In spite of Dr Hamilton's intolerance for the opinions of others, he could be impartial sometimes when his precepts were set at nought, showing that he had a kind heart under his love of quarrel. Of this I had the following memorable example. A candidate for graduation, under examination by him and myself, when I became his colleague, was questioned copiously on the Doctor's favourite rules of obstetric practice, but answered almost invariably *sens dessus dessous.* Proceeding to consult together as to the young man's fate, the Doctor said to me—

"Well, what do you say to that man's midwifery?"

"Very sad indeed, Doctor!"

"Well, but see,—our schedule shows that he got his midwifery from Dr —— of Dublin—which I knew very well by his answers. He has answered me according to the nonsense he has been taught. I cannot punish him for remembering his lessons. But as to trusting him to deliver a woman, I would not trust him with the delivery of a cat."

Many quidnuncs raise a clamour about teachers examining their own students as candidates for graduation. Do such people, when similarly placed with Dr Hamilton, show the same singular union of intolerance for the teacher and contempt for the doctrine with tenderness for the taught? I fear not. It is strange they do not see that a candidate is entitled to be examined as he has been taught; and therefore that the fairest examining board must be a board of his teachers—with others, if they choose, to see justice done, and partiality excluded.

Clinical Surgery was taught in a singular manner in those days. The Chair in the University was erected in 1803 for Mr James Russell, who held it for thirty years, when he resigned at the age of eighty, and was succeeded by Mr Syme. Mr Russell was not an acting surgeon in the Infirmary, as the clinical professor has always been since. He received, however, the appointment of permanent consulting surgeon; in which capacity he regularly accompanied the attending surgeons in their visits, was cognisant, therefore, of everything going on in their wards, and, moreover, was in some measure answerable for all acts of surgical interference which required to be authorised by a consultation. Having thus no hospital cases of his own, Russell nevertheless undertook, and by the acting surgeons was allowed, to discharge the delicate duty of lecturing on the cases of others. In such a method, criticism of course is impossible. Mistakes cannot be acknowledged. Better methods cannot be suggested. Even commentary must often

tread on tender ground, unless it consist entirely of approval, or at least of assent. Thus the student will be led to suppose that surgery is a sure and easy-going art, which either always attains its object, or, if not, fails through no fault of its own or of the surgeon. Russell, however, piloted his way skilfully among these quicksands, and gave much useful information to well-attended classes. But I must say he was a somnolent lecturer, — a quality which was fomented by an evening class-hour, and betrayed by an inveterate habit the professor had of yawning while he spoke, and continuing to speak while he yawned.

I attended Natural History in the summer of my first year of medical study—although I mention it last among my non-imperative studies for graduation. Robert Jameson, its professor, was beloved by the students for his devotion to his science and his chair, his amiable and affable manners, and his kindness to them in all circumstances. He was appointed in 1804, and attained his eightieth year and the fiftieth of his professorship; but for more than a twelvemonth before he died he was unable to teach. Jameson was rather above middle height, remarkably erect to the last, finely proportioned, slimmer in appearance than in reality—as is not uncommon with men of his build—for he was actually muscular, of iron endurance, and thus well fitted by nature for his favourite geological pursuits. My father and the Rev. Dr Macknight, who sometimes accompanied him in his walks through the Highlands, found that, although they

were both very strong muscular men, he even surpassed them as a pedestrian—covering long distances daily, although the minerals he carried sometimes accumulated before the evening's halt to a weight of sixty pounds. His lectures were numerously attended, in spite of a dry manner, and although attendance on Natural History was not enforced for any University honour, or for any profession. The popularity of his subject, his earnestness as a lecturer, his enthusiasm as an investigator, and the great museum he had collected for illustrating his teaching, were together the causes of his success.

A subject so extensive as Natural History could not be overtaken in a single three-months' course of instruction. He therefore took different departments at different periods of the year. When I attended him, he taught Meteorology, Hydrography, and Mineralogy in his lectures, and Geology in the field. For the last purpose he had abundant opportunities at hand in the sandstone, limestone, and greenstone quarries around the city, in the rocks of Arthur's Seat, Salisbury Crags, Corstorphine, Blackford, Braid, and Craiglockhart hills, the Pentlands, and the complex stratification and trap disturbances of the opposite coast of Fife. I well remember one of these occasions, when we all assembled at Glencorse bridge, seven miles from town, went up the valley, now occupied by great reservoirs, till we reached Habbie's Howe, struck across the hills to Currie, and then home through Bruntsfield Links and the Meadows. From

our trysting-place at Glencorse bridge we started 150 strong; and I have still a certain selfish pleasure in the recollection, that, after a long day of continual exercise, when Jameson marched up the "Mid-Walk," close to home, as erect, and apparently as fresh, as when he set out, he was accompanied only by myself at one side, and at the other by one of my "inseparables."

These geological walks, a previous excursion on foot to the Falls of the Clyde and Hamilton Palace, and an intended longer pedestrian tour with my father and twin-brother among the near Highlands,—which was broken off abruptly at the Trossachs by my father taking inflammatory sore throat,—inspired me with a passion for wandering and mountain adventure which has never left me, and which is not subdued even in the present day, when the power to gratify it is no longer what it once was. Bred at the foot of Salisbury Crags, early training there and on Arthur's Seat taught me swiftness and tolerable endurance among the mountains; so that I had full enjoyment of the pleasures they afford. The physico-mental gratification experienced in piercing the thin clear air of a Highland mountain, and conquering the difficulties of the ascent by judgment in choosing it, and perseverance in finishing it, is in itself no mean (in either sense of the word) enjoyment. But join with it observation of the plants which the low grounds do not produce, of the rocks forming the precipices or exposed in the stream-courses, of the

springs which gush out here and there, and of the geography of the surrounding country as seen from the summit, including hill-tops in the far distance familiarised by previous visits to them,—I know not any other exercise which so combines instruction, amusement, and healthfulness.

CHAPTER IV.

EXCURSIONS.

GLASGOW — BEN LOMOND — THE TROSSACHS — BLAIR ATHOLL — PERTH — STIRLING. ABERDEEN — DEESIDE — THE FINDHORN — FORT GEORGE — INVERNESS — FORT WILLIAM — BEN NEVIS — GLENCOE — LOCH FYNE — BUTE — GLASGOW.

At the time referred to, Highland excursions were not undertaken by many. The paucity of tolerable inns, the want of post-horses at some of them, the meagre commissariat of others, and the circuitous route of the roads among the mountains, rendered a pedestrian both the most suitably equipped and likewise even the quickest traveller. But of course it was not every tourist who could do his work day after day on foot, and do it with pleasure—submitting to occasional hardship and privation, too, without harm or grumble. Such a life, however, suited me very well—for a time at least.

Accordingly, encouraged by my father, I made in 1816 and 1817, in the autumnal intervals of study, two long Highland excursions, of the incidents of which I still retain a vivid and pleasing recollection.

In 1816 my twin-brother and I, and an English companion, George Smith, son of the owner of the Whitechapel Distillery, London, and afterwards a principal partner in that concern when it attained a gigantic magnitude, set off by coach to Glasgow, there to commence our adventures on foot. We did our journey of forty-five miles in seven hours, which at that time was thought very good going. A day was spent in Glasgow, first, in seeing the College and the Cathedral Church — the only sights there at that time, besides factories, of much interest to travellers; and secondly, in paying a visit to my mother's cousin-german, Mrs Penney, wife of an opulent merchant, daughter of Dr Johnston, minister of North Leith, and mother of the recently deceased judge, Lord Kinloch. A puzzling point in orthoepy raised an unforeseen hitch in finding her. Her house was in Buchanan Street, now a street of fine shops in the very heart of the great city, but then close to its western outskirts, and consisting of the private dwellings of its wealthiest merchants and chief people of fashion. Glasgow was then so far behind in civilisation as not to have the names of its streets posted up on their corners. Consequently, after walking some distance along Argyle Street we had to ask our way. But nobody could give us any idea where Buchanan Street (pronounced by us "Buckanan") was. "There's nae sic a street in Glasgy," said one. "There's siccan a street, I'm thinkin', ower awa' aboot the Gorbals" (two miles off), said another. I was sure this was a misdirection, and that we were very

near our object. At last a good woman, who had overheard our inquiries, said to me—"Maybe, sir, it was Buwhawnan Street ye were wantin'?" "Oh yes," said I, "it is Buwhawnan Street. Whereabouts is it?" "Weel, sir, ye're jist staunin' in the mooth o't!"

Having referred to the backwardness of Glasgow in civilisation, I may add the following illustrative anecdote, told me by Mrs Penney herself. The natives of the eastern and western capitals of Scotland were then not a little jealous of their respective attributes; and Edinburgh was thought by her sister to hold her nose unnecessarily high in her comparisons. The ladies of Glasgow were charged with being tasteless in dress, for one thing; and undoubtedly they long delighted too much in peacock and butterfly attire. This was the theme of frequent controversy between Mrs Penney and her father, when he visited her. On one occasion she challenged him to go with her to a ball, where he should see the choicest of Glasgow fashion, and for the first time have an opportunity of judging of the taste of the true ladies of Glasgow. The Doctor protested that it was rather against rule for an old clergyman to frequent balls, but agreed to go for an hour, to gratify her. Next morning, when asked, with an air of some pride and confidence, what he thought of the taste of the Glasgow ladies now, he replied candidly—"Well, my dear, I must acknowledge I did see last evening two nice-looking ladies, who were very tastefully dressed." "Dear me, Doctor, only two?" "Yes, I saw two

pretty and very genteel girls, I must confess." "Who could they be, I wonder? Only two! How were they dressed? Were they tall? Were they fair or dark? Were they?—do tell me all about them!" Dr Johnston did not know their names, but proceeded so to describe them as to cause his daughter to call out in great distress—"Oh dear! oh dear! oh Doctor! Doctor! Why, these were two Edinburgh ladies!" True or untrue at that time, the case is altered now, under free communication of all parts of our land with London, the centre of British fashion.

We commenced our marches with a moderate walk from Glasgow to Dumbarton, finding prehnite on the way among the blastings of a trap cliff hanging over the highroad about two miles from the latter place. In the evening we almost had a fight, to begin our adventures with. For, on my brother teasing Smith because he would sleep in his chair after dinner, the choleric Londoner sprang up and struck him; and a battle-royal was prevented only by my interposing my larger bulk between the combatants, who for a while eyed one another fiercely, and hit out at each other fruitlessly round my person, but gradually collapsed into peace, which next morning became good-humour for the rest of our trip. The third day saw us at the foot of Ben Lomond, after a charming walk up the broad, and at that time quiet sequestered vale of the Leven, and along the west bank of Loch Lomond to Inveruglas, where we took the ferry across to Rowardennan Inn. The ascent of Ben Lomond, and its descent on the other side to the "clachan"

of Aberfoyle—a rugged up-and-down climb of 3190 feet and 20 miles—was our next undertaking. On the summit the air was so clear that we could discern the coast of Ireland, distant 88 miles. But our most wonderful experience was to be for the first time above the clouds, which in great detached fleece-like masses seemed to roll from time to time across country from the Goat Fell range of Arran and up the slope of Ben Lomond, till they enveloped us for a time in dense mist, and discharged themselves of drenching showers. On reaching Aberfoyle Inn, very tired, along with two Edinburgh men whom we met on the top of the Ben, we found it was "Sacrament Monday" at Aberfoyle, when all the surrounding Highlands were eating and drinking, and bargaining, and love-making, and quarrelling, as if on a fair-day, in the house and outside the house, after the religious service of the "occasion" was over. We had to lie more than an hour on the grassy bank of the Forth, till the lass of the inn contrived to clear a room of the revellers for our accommodation, and gave us possession—cautioning us at the same time to keep our door locked against all comers except herself with our dinner. After dinner, however, a hill farmer came rattling at the door, and inquiring for our new acquaintances. He was scarcely admitted when fresh knocking announced others to inquire after him; then came fresh inquirers for them; till at length, as the lass had foretold, we had twenty Highlanders and more, all seated around us against the wall, and quaffing pure whisky, circulated from

man to man with an oft-replenished bottle and one wine-glass.

Next morning we crossed the high, broad, rough, wild, hilly land which divides the upper valleys of the Forth and Teith, and arrived at the Trossachs. A few years earlier in the century, before the 'Lady of the Lake' made the district famous, the only refuge for travellers here was the simple dwelling of an intelligent farmer, Mr Stewart of Ardcheanacrochan. When my father then visited the place, Stewart received him and his party as would a small Highland chieftain, entertaining them with his company as well as his good fare. But it was a well-understood rule for the visitors, at parting, to leave on the table what they judged to be compensation—just as some patients do when quitting the physician's consulting-room. The accommodation consisted at that time of a rude, thatched ground-floor house, with very limited but comfortable quarters. When my party was there, a larger, yet still small, blue-slated house accommodated the few additional guests as yet attracted by the scenery of Scott's poem; and the visit concluded with the appearance of an innkeeper's modest bill in due form. We were so unlucky, however, as to find the new house occupied by a fashionable London sister-in-law of Stewart; so that we were relegated to a long low thatched cottage behind, consisting of a "but and a ben," each containing two roomy press-beds. Ten years later, when I revisited the Trossachs with Dr Edward Turner, Stewart's humble quarters were replaced by a large hotel which bedded thirty-seven

customers; and now there is a huge castellated edifice capable of housing a hundred.

I forbear from dwelling here on what we saw at the Trossachs and Loch Katrine, or on the now well-beaten track from the Trossachs to Callander, thence to Lochearnhead, Killin, and Kenmore, to Logierait and Blair Atholl, to the marble quarry half-way up Glen Tilt, back again and on to Dunkeld, and then to Perth. In returning through the Pass of Killiecrankie, I had my first and only experience of what it is to carry, on a long march, something approaching in nature to a soldier's pack. Smith must needs collect geological specimens twice the size of Professor Jameson's regulation "hand specimen"; so that, on quitting Blair for the south, he had accumulated a weight of 20 lb. of them to carry. Hence we had not gone a few miles when he began to lag, then to sulk, and at last to break down. In short, I had to offer to carry his burden for him. It was no sooner transferred to my shoulders than he trotted off at our usual four-mile pace, which at first I took up willingly. Ere long it became hard work. But I reached Perth with the others—very tired, it must be confessed. With good sixteen miles of road to clear, the addition of 20 lb. weight to the ordinary equipment of a pedestrian tourist is no joke—not a thing to be borne lightly, by any means.

From Perth we went next to the mansion of an old family friend, Mr Walker-Arnott, father of the Glasgow Professor of Botany,[1] and thence to Dollar

[1] See *ante*, p. 39.

and Stirling along the base of the Ochils. On the way we passed the bottom of a very long, steep, smooth acclivity, ending evidently near the top of Dumayet. So we at once quitted the road to climb to the summit. Here Smith got again into a hobble. It may not be easy for every one to conceive how a man may get into danger on a grassy slope. But Smith did. When we were a great way up, the slope gradually became extremely steep,—at last the steepest grass slope I had ever climbed. The short, dry, slippery turf soon compelled my brother and myself to betake ourselves to our bare feet for security. But southern scruples led Smith to consult his dignity by retaining his stockings. I had surmounted all difficulty, and was looking down from a small rock at the brow of the ascent, when I saw Smith slip down, and, after a fruitless effort to regain his footing, stretch himself straight out, clinging to the turf with his fingers, and calling piteously for help. For a moment I laughed at him. But when his voice began to quaver, I immediately became aware that he was in real danger. My naked feet enabled me, with caution, easily to go down to his relief, when I found him trembling all over and utterly helpless; and no wonder, for had he let go, he would have slid with great velocity down a very steep, smooth declivity of several hundred feet into a mass of rocky *débris* at the bottom.

From Stirling we proceeded home without any adventure I can recollect. I well remember, however, even the details of a most glorious sunset behind Ben Lomond, as seen from Stirling Castle.

In 1817 I made a wider and longer tour—of which, somehow, I have a more lively recollection—with my brother and a constant companion, Douglas Cameron, afterwards his brother-in-law. We first sailed to Aberdeen, then overran both the coast and interior of Buchan, skirted the Moray Firth to Inverness, crossed Scotland, by the line of lakes which are connected by the Caledonian Canal, to Fort William, and by way of Glencoe passed through Dalmally to Inverary, and thence by water to Hunterston in Ayrshire, whence, after a few days' sojourn, we returned straight home. We were absent seven weeks, partly travelling, partly residing with friends, but perpetually in motion. On arriving at home, embrowned, thin, wiry, and ragged, we were not at first recognised, and were then welcomed with shouts of laughter.

Our voyage to Aberdeen was my first experience of the horrors of an ocean-passage in a sailing packet. From Leith to Aberdeen, a sea-distance of 100 miles, a strong south-west gale bore us in twelve hours at night, over a constant and considerable swell. A cabin nine feet by six, surrounded by a double tier of berths, ten in number, was the whole accommodation for thirty-four passengers, all very sick but three, of whom I was one and Cameron another. To put our two noses into the steaming fumes of the cabin was an impossibility. All night we had to stay on deck, and to pace it for warmth—our pedestrian costume being necessarily light, and not admitting of the luxury of a greatcoat. At five o'clock of a bright sunny morning we were rather suddenly becalmed,

only two miles from Aberdeen, and were taken off in boats to the harbour. We landed just in time to find the hotel doors opening, and the sleepy waiters and half-dressed housemaids preparing to put things in order for the day. There was no resource for our wearied bodies, amid such discomfort, but to do Aberdeen before breakfast; and we then did break our fast with a vengeance, after it had lasted four-and-twenty hours. Our fellow-passengers from the cabin were a sad spectacle as they went over the ship's side. One tall young lady, who was very sick in the cabin before the vessel left the still dock at Leith, was in so helpless a state of collapse off Aberdeen, that she was lifted into the boat in a blanket.

While staying a few days at the hospitable manse of the Rev. Mr Boyd of Crimond, we made various long excursions,—and, among these, one to the top of the Hill of Mormond, about 700 feet high—the only considerable hill in all Buchan. Near the summit we encountered in this treeless country—as treeless as when Samuel Johnson described it—a pine plantation, thirty years old, and about eighteen inches high. Thirty years later, the proprietor, Mr Gordon of Cairnbulg, told me one day at a Royal Society Club dinner that the wood on Mormond Hill still existed, and was no taller. In a short excursion up Deeside in 1857 with Mr Syme, we found a similar forest on a steep slope behind Braemar Inn, rising probably 1800 feet above the sea. The wood began many hundred feet lower down, where it consisted of well-grown trees. We went through it, tracing its gradual

degeneration upwards, till at last the pines were reduced to plants eighteen inches tall. I judged the vigorous trees to be about twenty-five years old. On cutting one of the stunted trees across, we found the bark extremely thick, and the wood only three-quarters of an inch in diameter—on which we counted with a magnifier twenty-five annual rings.

While at Crimond we made excursions likewise to Slains Castle, the Bullers of Buchan, the ruins of Pitsligo Castle, and Fraserburgh in the herring season. We then proceeded westward, picking up serpentine at Portsoy,—visiting Gamrie Kirk, "built in 1004," like a barn, with two grinning skulls of Danish pirates stuck into the wall facing the pulpit,—surveying the interior of Duff House, Banff, and setting up our rest again for a few days at Relugas, on the banks of the Findhorn, or rather of its tributary, the Divie. This beautiful property belonged at the time to Lady Dick Lauder, and was in charge of Mr Wilson, a brother-in-law of my father, originally, like him, from Berwickshire, but long settled in the north as farmer, factor, and superintendent of roads. Here we made many delightful excursions to Loch-in-Dorbh and its island-castle; to Darnaway Castle and its woods; to Pluscardine Abbey, a noble ruin too little known; to the great heronry of the lower Findhorn; to the Chief's Loup, a narrow rocky gorge through which the river rushes with pent-up fury, and across which a fugitive chieftain leapt in desperation when closely pursued by his bloodthirsty enemies. I retain a most lively recollection of all events during this Relugas

visit. But two sights dwell especially in my memory. One was a fine wheat-field on the north bank of the river Findhorn, the first crop after Mr Wilson had cleared the ground of three feet of great water-worn stones by tumbling them into the impetuous stream. The other was the first presentment of an afterwards intimate friend, the eccentric Miss Grace Baillie, long well known in Edinburgh circles. We three lads were invited to breakfast one morning at Logie House by her sister, Mrs Cumming of Logie, mother of Lady Coxe of Kinellan. Breakfast was well advanced, when in swam the tall, large frame of Miss Grace, exuberantly caparisoned in lace and jewellery, scenting the whole room at entry, and attended by two fat, barking pug-dogs,—all which display had been got up to meet "three Edinburgh gentlemen." Her theatrical pause of astonishment may be conceived, when the visitors suddenly dwindled down to three raw, nut-brown lads in jane trousers and jackets.

From Relugas we marched to Fort George, where I slept for the first and last time in a fortified place. On the way we visited Cawdor Castle, and saw there, with all necessary respect, the bedstead in which King Duncan was murdered by Macbeth, and the trunk of a hawthorn-tree, piercing the floor and ceiling of a cellar, on the spot where it grew at the period of the foundation of the Cawdor family. From Fort George we proceeded to Inverness, dwelling for a day, however, with Dr Duncan Forbes, previously tutor, and then factor, to Forbes of Culloden, and taking advantage of the opportunity of digging up combatants'

bones on the field of battle in the neighbourhood. Leaving Inverness, we chose at first the road on the north side of Loch Ness. But at Invermoriston we were induced, by the master and mate of a barge belonging to the garrison of Fort Augustus, to cross the loch with their crew of six soldiers to General's Hut and the Fall of Foyers. We arrived close to our post at nightfall, but grounded on the bar of the river; and our boat being heavy, she was not got over and drawn up on dry land till ten o'clock. This was too late an arrival at a remote Highland inn. Accordingly we found its two rooms engaged, so that we had to make a parlour of the kitchen. The provisions of the house were reduced to dry oatmeal-cakes, kebbock-cheese, whisky, and the well-picked bones of a gigot of mutton—not even milk or butter being left. The only feasible bone of the lot was unanimously voted to the smallest and most wearied of the crew; but he had barely put his teeth to the miserable remains of flesh on it, when a lurcher from under the table robbed him in the most barefaced manner, and scampered off with it into the darkness. Our very Lenten entertainment, after thirteen hours of fasting, did not in the least degree prevent us from passing a merry evening with our rough comrades. We then retired to our respective quarters,—the boat's crew and officers to the hay-loft, and we three to a berth of greater honour, a sort of closet on the hay-loft floor, screened off with a few planks, furnished with two flock-beds laid on planks, and canopied with a populous hen-roost among the rafters, where an old

cock and a young cock, disturbed by our lights and laughter, crowed treble and bass to one another the whole night. Before retiring from the kitchen to seek repose, some one suggested jocularly, and others agreed with progressively swelling words of determination, that in the middle of the night we should storm and capture the two rooms above us, each of which had two beds, occupied by a touring party—two gentlemen in one room, and one lady only in the other. It seems that, through the thin unceilinged kitchen roof, they heard distinctly our threats, took them *au sérieux;* and as the lady's bedroom door had neither lock nor bolt, they erected upon a table a tottering structure with a gridiron on the top of all, so that when the lady, on the departure of her squires for the night, should carefully push the whole erection upon the closed door, it could not be opened from the outside without such a clatter and hubbub as would bring her two defenders to the rescue.

Our entertainment, whether in food or rest, had not been such as to be any impediment to our getting up next morning at four, visiting the Fall of Foyers, and taking to our boat at six, for Fort Augustus, fifteen miles off. A long day's march brought us to Fort William, without any notable incident.

Next day was spent in climbing Ben Nevis. We were seven hours away from our inn, doing the work rather quickly, but remaining more than two hours on the summit. The summit had evidently been at one time a broad table or flattened dome. But about one-third has been carried away by a deep cut into one side

of the mountain, so as to form two tremendous precipices, facing, or rather enfilading, one another, and meeting at an obtuse angle in the middle of the platform. The re-entrant angle between the precipices is filled up by a uniform slope of rocky *débris*, descending about 1000 feet at the usual rubbish-incline of 45°. This slope may be descended or ascended in ordinary years. But the hard winter previous to our visit, followed by a rather ungenial summer, had left fully 800 feet of the slope covered with a uniform sheet of snow. The precipices, at their outer ends, are said to be 1500 feet in height; and I can believe it. For I have since seen them, in a very clear day, in 1843, making a great show from a height above Loch Broom, sixty miles off; and a large block of basalt—as much as we three and our guide could turn—when pitched over the edge, near the middle of the south precipice, where the rock appeared to us to be mural, took so many seconds for the sound of its first stroke to reach our ears, that I calculated the elevation to be 700 feet even at that point. The atmosphere favoured us highly, being so clear that there was no limit to the view except an obstructing object. I saw, towards the north-east, the inlet of the Moray Firth, near Inverness, at least sixty-five miles distant; and westward, to the south of the Hebrides, a long line of sea-horizon, which, as our elevation was 4406 feet, must have been distant eighty-four miles, says Professor Tait. But perhaps the most magnificent spectacle of all was the vast field of mountain-tops, stretching over three-fourths of the surrounding panorama—looked down

upon, owing to our greater elevation, and therefore appearing to slope from us—like a surrounding green sea of great, broken, detached mountain-waves, rolling away as far as the eye could reach. Not less impressive, however, than that view was the utter silence around. I have been often on the summit of mountains in Scotland; but there usually prevails on a mountain-top breeze enough to create a murmur, and disturb the otherwise dead stillness of nature. On the present occasion there was not a breath of air. The absence of sound, generally total, was rendered only the more solemn when broken from time to time by a faint soft hiss—swelling, floating, and fading on the ear—from the far-off falls in Glen Nevis, denoted to the eye by a long thin silvery line, two miles distant and 3500 feet below.

Before our descent I had an escapade. The great snow declivity between the precipices was interrupted, about fifteen feet below the top, by a flat snow terrace, twenty feet wide, or perhaps a little more. We all proceeded to slide down to the terrace, and I led the way. On arriving at the bottom of the short slide, I counted on stopping farther progress at once by striking my heel into the snow of the terrace. But its surface proved to be hard, impenetrable, slippery *névé*. Instantly apprised of my danger, I threw myself on my back, and stretched out arms and legs to increase the friction; by favour of which I stopped before arriving at the edge! Had I not, what then? Immediately I sprang up, rushed back to my companions, and met them on their descent, to their sur-

prise, by knocking them flat on their backs at the bottom of their slide.

The upper part of Ben Nevis is densely and uniformly covered with loose sharp-edged blocks and stones of dark-grey basalt,[1] which is its uppermost rock. The same covering, without either soil or verdure anywhere, forms the surface of the mountain for 800 or 1000 feet down on all sides. How has this flooring been produced? Not by mere denudation, Professor Geikie! For why collected only on the upper dome of the mountain? And why are all these loose rocks and stones angular, not rounded? I have since met with the same geological structure on several other Highland mountains—notably on the Cobbler, where the blocks are black mica-slate, generally of great size; still more so on the adjoining Ben Arnan, where the rock is the same, and the masses are crowded and very large; and also most remarkably on Craig Legechich in Glen Shee, where they are all composed of a white, extremely dense, fine-grained, quartzy sandstone. It is not unworthy of remark, too, that on the higher, dome-shaped, broad top of the Glas-meal, of which Craig Legechich is the western spur, with very little depression between them, the surface consists of small mica-slate stones and a good deal of soil, a little scrubby grass, and more lichens, without any large angular stones or blocks.

[1] Later in life Sir Robert stated, in a paper read before the Royal Society of Edinburgh, that this stone, although very like basalt, is a porphyrite.

My last act on the summit of Ben Nevis was to seek out the highest undetached rock, to break off its tip, and to carry away the top of Great Britain, which is still in my possession—2.0 inches by 1.75, and 0.6 thick, of undeniable basalt.[1]

Next day we walked no farther than Ballachulish, rather lazily, and the day after that to King's House through Glencoe, very stiffly. For we had descended Ben Nevis rapidly in a straight line down to the bank of the Nevis, first over stones, and then on very steep turf, often running, and often leaping from one green hump to another. This is the most trying of all exercises on a mountain. We had trusted to our previous training; but we trusted in vain. The strain on the anterior muscles of the thighs and legs was too great; and consequently, as I have always found after unwonted violent muscular exertion of the limbs, the strained muscles became on the second day thereafter, but not till then, sore, stiff, and tender to the touch.

Of course we were awe-struck by the precipitous mountains which everywhere bound Glencoe, and very much enchanted with the grand cone of parallel rocky zones composing the mountain behind King's House. With the intention of making a longer march on the subsequent day, we took an early stage of nine miles to the solitary Inveroran Inn. As we approached it, very hungry with our early morning's walk, we descried pouring out from the door a crowd of road-makers, who had left us for breakfast

[1] See note, p. 109.

literally nothing but oat-cakes, salt herring, and whisky. But this proved hard training diet, though not over-savoury, for we afterwards made out sixteen miles to Dalmally. Another day's easy march brought us, by way of Loch Awe and Glen Ary, to Inverary.

Here we wandered through the grounds surrounding the castle, and ascended the hill of Dunaquoich, which, from a height of about 1000 feet, overlooks Loch Fyne and its shores. I well remember that glorious view of Loch Fyne, studded as it was with uncountable boats under sail, busy with the herring-fishery. The only other scene I clearly recollect was the lawn avenue of splendid limes, their branches meeting the grass, and their dense foliage rising in tall graceful cones to a great height. They were then at their best, for several were blown down afterwards. Thirty-five years later, while rusticating at Arrochar, I descried a few with the telescope from the summit of the Cobbler, ten miles off. I understand they are all gone now.

In the early morning we boarded a Clyde steamer, one of many already plying in the narrow lochs of the Firth. Without any incident of note—except my first and last opportunity of breakfasting on delicious Loch Fyne herrings handed into the steamer from the fishing-boat which had just drawn a netful of them—we were landed at Largs, in Ayrshire, bound for the seat of Mr Hunter of Hunterston. We spent three days there, fishing whiting one day, rowing the next to Little Cumbrae, two miles and a half distant, and on the third pulling four stout oars

five miles to the island of Bute. The Little Cumbrae was then, and I believe still is, an uninterrupted rabbit-warren. As we rose over one gentle grassy swell after another, the little creatures scampered to their holes in crowds, like flocks of sheep alarmed on the highway. Our excursion to the south shore of Bute was made with a college companion, young Hunterston, for our fourth oar, and his little brother for coxwain. The day being very hot, we anchored in a lovely bay close to land, and swam ashore to disport ourselves in our skins on a long stretch of fine firm sand. While we were enjoying the ease and freedom of racing in so unusual a garb, a large flock of goats appeared on the top of the bank overlooking our race-course, charged down upon us in line, and drove us ignominiously into the sea. We returned, however, to land, armed with our oars, and repulsed the enemy after a stout resistance and many hard blows.

Next day brought our seven-weeks' campaign to an end by our return home, *viâ* Glasgow, on the top of the coach—so nut-brown that our parents and servants once more welcomed us with shouts of laughter.

CHAPTER V.

INFIRMARY LIFE.

NOTICES OF COMPANIONS, THEIR CHARACTERS AND THEIR HISTORIES: WILLIAM CAMERON, BENJAMIN WELSH, MOWBRAY THOMSON, DONALD MACINTOSH, JAMES CRAIG SOMERVILLE, DAVID CRAIGIE, LUCIUS O'BRIEN, WILLIAM CULLEN, EDWARD TURNER, WILLIAM TURNER, GEORGE STEDMANN, DOUGLAS CAMERON, JEAN CHARLES COINDET.

I HAD been but a few weeks at home from my long pedestrian excursion in 1817, when I was called on to enter on a very different sort of life.

William Cameron, a companion older than myself, physician's-assistant in the Royal Infirmary, had been attacked by the fever which about that time began to prevail epidemically in Edinburgh, and with the treatment of which he had been much concerned in the hospital. I accepted his invitation to be his substitute, and at once was installed as lieutenant of Dr Spens, and became a full-fledged physician, with all his formidable responsibilities.

This mental condition, a sense of responsibility —the bugbear of many, and in the mouths of all—I

felt neither on this nor on any other occasion. It seems to me to have been always swallowed up by another mental condition, a fixed determination to do my duty, and more than merely my duty. By following this rule, I learnt to avoid the oppression which many feel under what is usually called responsibility, and to leave all consequences to myself in the hands of a good Providence. But, be the cause what it may, responsibility has never given me a moment's thought. On the present occasion I got settled in my saddle at once—very much owing, I believe, to the kind indulgence and fatherly care of the warm-hearted Dr Spens, my superior, and ever afterwards my attached friend.

I thus commenced at an early age a period of two years and a half of professional practical training, than which I do not believe there is any better in the whole world. The cases in the Edinburgh Infirmary, attracted from various and distant quarters, illustrate almost all diseases. The office of Physician's or Surgeon's Clerk—now called Resident Physician or Surgeon—places a young man in a position of primary responsibility, free to act according to his judgment, as soon as he wins the confidence of his chief. He resides along with companions similarly placed with himself, and among whom, when they happen to be youths of talent, as was the case with most of mine, he may always have interesting professional intercourse, and often valuable advice. Farther, he has his physician-in-chief, or surgeon, to uphold, inform, and check him when necessary. Thus a mere acci-

dent gained for me this most enviable position, while I was a young student, having finished only my second year of study, and nearly two years before I graduated; whereas now a young man must be a registered graduate or surgeon before he can hold such an appointment. I may justly say, and, indeed, thankfully acknowledge, that in each important step in my life, circumstances have seemed so to arrange themselves as to secure my advancement at an unusually early age; and in this instance the appointment was a very important one, as I have always held, both in itself and as leading to others not less so. It placed me, when I left it at the age of twenty-three, on a level as to professional knowledge with other men seven years and more my seniors, and gave me advantage in any professional competition that might arise.

I began as substitute for William Cameron in the office of physician's clerk; soon afterwards I succeeded him on his going to Calcutta in the East India Company's medical service; and during my final nine months I exchanged with a comrade, and became house-surgeon under Sir William Newbigging.

During this period there were seven young resident medical officers connected with the Infirmary—four in the Infirmary itself, and three in Queensberry House, which was fitted up as a hospital for fevers, in consequence of an epidemic having broken out in Edinburgh far more extensive than any upon record there. These residents being often seized with fever, deputies became necessary. Thus it was that thirteen or four-

teen of us were brought almost constantly together; and being sufficient society for one another, we had little communication with other medical students. My companions differed, of course, in mental endowments and character. But it was remarkable how many young men of sterling ability were thus, apparently by chance, brought into one another's constant company. I can well recollect how, during these two years and a half, iron sharpened iron, and I can readily recall the countenances of those who chiefly had that influence on me. Dwelling, as I now do, on those happy days—from which all recollection of what must have been occasional disturbing unhappiness has entirely vanished—I cannot refrain from here recording the impressions left on me of the chief points in the characters and lives of my hospital associates, although truly this detail may be destitute of interest to any but myself.

William Cameron was about three years my senior in years and as a student; and consequently, though I was very intimate with him in social life, we were thrown little together in our professional pursuits. Very soon indeed after his recovery from fever, he sailed for Calcutta. There he rose well in the East India Company's service, and in no long time he became one of the presidency surgeons. As he never married, he ought to have made money. But he was addicted extremely to the Indian virtue of hospitality. Nevertheless, at his death, which took place at middle age, his friends were astonished that he left literally nothing behind him, not even any valuable property in

his house; so that strong suspicions always existed that he had been plundered both of money and goods by his native steward, on whom he indolently devolved too much.

Benjamin Welsh,[1] younger brother of a much-respected physician at Haddington, was in the first place assistant to Dr Hamilton in the Infirmary, and then superintendent of the Fever Hospital. Keen-witted, pugnacious, fiery, and one-sided, he threw himself with his whole heart into the cause of the bloody treatment of fever. Such was his faith in the influence of this remedy, that in a book on the "Edinburgh Fever" which he published in 1819, he maintained that the varying types of epidemics, sthenic and asthenic, depended simply on the use or the avoidance of blood-letting as the remedy. Use the lancet freely, the type was sthenic or inflammatory, and easily curable: abstain, and it became asthenic, typhous, and intractable. Not long afterwards, his brother having died, Benjamin Welsh took his place at Haddington, but followed him in a few years,—dying of consumption before seeing that change arise, about 1831, in the constitution of our fevers, which could scarce have failed to convince him of his error.

Martin Mowbray Thomson, son of a retired navy captain, was the fighting-cock of our circle. Not that we ever fought, or even quarrelled. Not that Martin Mowbray was quarrelsome, or in looks or manner combative. On the contrary, he had small, fine, peaceful, almost feminine features, and a frame which

[1] Uncle of Mrs Carlyle.

only attentive inspection showed to be one of agile strength. He did not even join in the exercise which some of us took in sparring. But he was a wondrous natural fighter, which quality he had ample opportunity of verifying upon the turbulent, quarrelsome lads of the street. In those days a little knot of gentlemen could scarcely ever traverse Princes Street, the North Bridge, and the South Bridge at night, without ample provocation over and over again to fight. On such occasions our meek-looking companion became a lion, before whom I never saw one of the "unwashed" who could stand for a moment. He rose well in the East India Company's service, but died of cholera about the age of fifty.

Donald Macintosh, who never held an appointment in the hospital, but frequently acted as *locum tenens* for a fevered comrade, was one of Dr John Thomson's secretaries. His abilities, naturally good, were well cultivated through the nature of his duties under Thomson, whose wont it was to employ some clever young man as a fishing cormorant, to hunt up and read references and other authorities for him, while composing his lectures and publications. Donald thus became a learned student, and an authority for facts and histories, a great stickler for the non-mercurial treatment of syphilis, and a steady defender of the identity of chicken-pox with small-pox—Thomson's two favourite doctrines of the day, extremely popular in Edinburgh. It is probable that Macintosh would have risen in the ranks of our pro-

fession — for Dr Thomson never lost sight of his young assistants who proved to be worthy of his patronage, which was powerful; but unhappily our companion died of consumption a few years after he graduated in 1822.

James Craig Somerville, son of Dr Somerville, husband of the famous lady mathematician, was a little, clever, merry, restless, talkative newsmonger and story-teller—a great source of amusement, but sometimes a breeder of mischief. He was a general favourite for his real and active kindliness of disposition; but at the same time he was apt to be viewed with some reserve, for his looseness of tongue and love for the part of busybody. "Summus Minimus" knew every one, every one knew him; and so he was an amazing store of tittle-tattle information. He settled as a physician in London, with no great success. He had interest enough to get afterwards the appointment of Inspector of Anatomy, under Warburton's Anatomy Act of 1835. But, owing to some cause which I have forgotten, he did not long give satisfaction. Chagrined by this and other disappointments, he fell into ill health, and died about middle age, without leaving any evidence of the ability he showed in early life.

David Craigie was our pundit. When an Arts student at the University, he showed uncommon aptitude for acquiring languages. He knew well Latin, Greek, and several modern tongues, something of Hebrew, and Persian thoroughly. This early training made him a great reader, fond of diving into the older modern medical authors, whom he delighted to quote in con-

troversy and conversation. Craigie was ever full of "wise saws and modern instances"—sententious, yet verbose, and circumflex even in common talk. His style in composition was the same. When he became subsequently reviewer in the 'Edinburgh Medical and Surgical Journal,' his articles were easily known by the beautiful Italian smoothness of the letterpress, arising from few points, and from *sesquipedalia verba*, without tails or spears to blotch the interlining. Compare, for example, the two following sentences of Latin and Teutonic English, and the ocular diagnosis may be seen by any eye: "I recommend reconsideration of your predicament and the wisdom of recovering intercommunication with your formidable adversary, in circumstances so anomalous and with military preparations so incommensurate." "Tell your friend, with my regards, that he is a big fool to be always using such a crowd of long, double-legged words, which only serve to cloud his thoughts, cripple his reader's speed, and tire out every one's patience."

Craigie wrote many learned papers in the Medical Journals for a long period of years—none of an original nature of much importance. He also published two thick octavos—one on Pathology, the other on the Practice of Physic. Neither of these works took with students or practitioners. His 'Practice of Physic' presented one novel feature, inasmuch as he tried to affix to every disease a vernacular name, which, strangely for one of his usually Latinised diction, he strove to deduce from Saxon roots. His reader may be amused with such attempts at nomen-

clature as *Scaly Tetter* for Psoriasis, *Tedious Blebs* for Pompholix diutinus, *Knobbed Nettle-rash* for Urticaria tuberosa, *Rank Red-Gum* for Strophilus confertus, *Horny Fish-Skin disease* for Ichthyosis cornea, and *Prominent Limpet-Shell Scab* for Rupia prominens; but no one espoused his English nomenclature, and British medicine still recognises these abominations by their Latin names only.

Dr Craigie became one of the ordinary physicians in the Royal Infirmary, in which capacity he was a faithful and zealous officer, and an energetic practitioner. He was also for some years a private lecturer on the Practice of Physic; and though never popular as such, his teaching was much approved by those who did attend him. In 1842, when Dr Thomson resigned the Chair of General Pathology in the University, he naturally became a candidate for the vacant office, and was generally regarded as the fittest competitor. But he lost the election in a strange way. The race lay eventually between three. Two votings were therefore required to decide the election. It was well ascertained that, at the first vote, Craigie would have thirteen, and each of his rivals ten, of the thirty-three voters in the Town Council, who at that time were patrons of the chair. Craigie's supporters, therefore, at the first voting, lent a Councillor to the rival who was supposed to be the weaker of the two for the second and final voting, so as to throw out him who was thought the more formidable. The first vote stood — 12, 11, 10, in Craigie's favour. The lent voter then wheeled back to Craigie. But the in-

ventors of this ruse had made a mistake, and brought in for the final vote the wrong man for this purpose, and he was appointed by a majority of seventeen to sixteen.

Whether this deplorable misadventure—the loss of an important office by one vote only—was the cause, I cannot say; but Craigie fell not long afterwards into a most pitiable state of ill health. He was a marvellous instance, however, of the tenacity of valetudinarian life. He inherited an untoward constitution; and while a young adult, had twice serious indications for a considerable time of commencing tubercular disease in the lungs. He recovered, however; and though slim and defective in muscle, he became apparently healthy, strong, and hardy. He once walked with me from Edinburgh to Foulden, fifty-four miles, in two days, without any previous training; and on the first day we did twenty-eight miles in seven hours. But eventually he was attacked with what appeared to be subacute rheumatism of both knee-joints, ending slowly in "ivory joints," or perhaps even anchylosis. He was thus confined for years to a wheeled-chair within doors for locomotion; and when at last he emerged from retirement, he could only walk a slow pace, with both the thighs and legs much flexed. Notwithstanding all these melancholy drawbacks to longevity, Craigie, against all ordinary rule, attained his seventy-first year. His mind, too, continued active and busy to the last.

Lucius J. O'Brien was a fine specimen of a polished Irish gentleman. To this character he was well en-

titled both by birth and by education. For he was educated in England chiefly, and his family were reputed to be next in claim to the Thomond Marquisate after the family in possession. Moreover, Callander of Craigforth was his uncle; and Lady Graham of Netherby, wife of the well-known Minister, Sir James Graham, was his aunt. He had a handsome, engaging countenance, great liveliness in conversation, and no brogue unless he was imitating it. His excellent training and mild disposition, however, could not withstand the disturbing influence of wine. At a Medical Society's dinner he became outrageously rude, and insulted two members to the duelling-point. But one of them appealed successfully from Lucius drunk to Lucius sober; and next morning he himself took the initiative with the other, a more formidable character, by dragging me with him at six o'clock to the offended man's lodgings, and tendering an ample apology. He never afterwards allowed himself to fall into similar danger. O'Brien had good parts, was a diligent and prominent student, and in the hospital an acute observer and sound practitioner. Strange! sadly strange! that the life of such a man should prove a failure. He settled as physician at Cork soon after he graduated. There his sensitive sympathetic heart fell deeply in love with a beautiful girl of good station, but decayed circumstances, whom he attended in his professional capacity. Marriage was the natural result of this Irish concurrence of provocations to it; but, in order to live in that state, he accepted a situation in Kingston, Jamaica, with

good prospects of success. He had not been long settled there, when, his wife dying, he fell in love with a brown lady, and married her. This was an unpardonable breach of decorum in a slave colony, and all subsequent professional progress came to an end. He consequently migrated to Canada, where he settled at Toronto, became Professor of Medical Jurisprudence in its college, but did not succeed well in medical practice. Eventually he got a post in the Customs Office at Montreal, where he died at the age of seventy-five, in, I fear, very limited circumstances.

Of all my hospital companions, William Cullen was endowed with the greatest talent, and in him it almost amounted to genius. He was grand-nephew of our great Professor Cullen, and son of an army colonel, famed in Edinburgh for his good looks, which, I have heard my mother say, even attracted ladies to his church to see him. My companion, too, had in his youth very fine features, which, however, became rather large after adult age. His mother, a fine-looking woman, was sister of Sir John Hope of Pinkie; and consequently her son had access to the society of a wide circle of Edinburgh aristocrats of the exclusive class. Thus his manners were excellent. He had been a High School dux, and easily so; for he had a powerful, retentive memory, wonderful rapidity in his studies, great facility and choice of language, and intense energy in every pursuit. He had singular invention so far as thought went, but none of a practical tendency. He had read a great deal for so young a man, and all he learnt was at his immediate

command. Except in classical literature, however, much of his reading was of the flimsy sort. He knew nothing almost of mathematics and physics, and little of chemistry, botany, and natural history. Even when a very young man, he was one of the most powerful public speakers I ever heard.

With all these great advantages, Cullen's success in Edinburgh seemed certain, and every one who knew him foretold that he would prove a future bulwark of its medical school.

But other necessary conditions were wanting. He was of an eminently sanguine temperament, and he partook of its frequent defects. He was impulsive and impetuous, deficient in fairness, discretion, reserve, and forbearance. Hence, while he was the wittiest man in conversation I have ever met, he had no scruple in exercising this talent at the cost of his acquaintances, absent as well as present; and thus he made among them not a few enemies, many neutrals, and not many true friends. I remember his meeting one day on the North Bridge Charles Neaves, afterwards Lord Neaves, and myself—all three of us newly entered on the business of life—when Cullen amused us with his sneering witticisms, truly or falsely portraying the characters of a multitude of our common friends. He then passed on his way, when Neaves observed—"Don't you feel that the next acquaintances whom Cullen meets will be equally amused at your expense and mine?" Thus it was that he damaged his position. I must say for him, however, that he and I, whose intimacy was greater than that

between him and any one else, never experienced either interruption or abatement of it, till not long before he died, when, indeed, a serious coldness arose betwixt us.

On leaving the Infirmary in the autumn of 1819, he spent a winter at St Bartholomew's Hospital, London, where he was Abernethy's anatomical prosector. Next summer I joined him there; and in the following autumn we went to Paris, and dwelt together till I went back to London in the subsequent summer of 1821. Cullen remained some time longer in Paris before returning home to Edinburgh. During his long absence he worked hard to make himself a thorough anatomist; and he succeeded, in spite of awkward fingers.

At Edinburgh he started as Lecturer on Anatomy, his ultimate object being the practice of surgery. This was a mistake on his part. Physic was his forte, and ought to have been his portal. But indeed his choice of a profession was a mistake altogether. He ought to have been a lawyer; but an elder brother stood in his way at the Bar, although unsuccessful.

William Cullen's choice of surgery paved the way to his untimely death. Not long after he commenced lecturing, the College of Surgeons—of which he had become a Fellow—having been desirous of obtaining a Pathological Museum, he proposed a scheme for making a collection at Paris, through his intimacy with the medical officers of the chief hospitals, where the materials were far beyond the wants of the Parisian museums. After consider-

able opposition, arising from jealousy of the advantages which Cullen would derive from executing such an undertaking, the proposal was carried in the College; and he repaired again to Paris with plenary powers and funds. At first he was successful; but very soon—through Parisian jealousy, as he maintained—he found all access to materials gradually shut against him. His sanguine disposition could not brook the disappointment. He sustained a bad attack of apoplexy—so bad that Dr Alison, who happened to be passing through Paris at the time, thought he could not recover. He did recover, however, and returned home quite well.

In a short time he was appointed assistant-surgeon in the Infirmary. He then seemed to all men to have the ball at his foot. But alas, poor Cullen! He had not been many months on duty when he fell one day into a fit of epilepsy in the hospital, in presence of a crowd of students—about two years after his attack of apoplexy.

Every well-informed physician knows that epilepsy after apoplexy usually makes short work with its victim—in two years commonly, or in three years. But Cullen appeared to have shut his eyes to the sad realities of his state; for although he had several subsequent fits at moderate intervals, he determined to marry. But for once Cullen had been guided by prudential considerations; for his father-in-law was a man of reputed wealth, extensive connections, great influence, and in the Infirmary all-powerful as a manager. Advantage was wisely taken of the last attri-

bute to effect the translation of Cullen from his office of surgeon to that of physician, which had fallen seasonably vacant. I stood, indeed, in his way as a prior applicant, his senior in age, and as a physician, and with the prestige of a University professor. The paternal manager got over this little difficulty by splitting the office, and so both Cullen and I were appointed ordinary physicians. I had no objection, for there was ample work for both; but we were no longer *les deux inséparables.* On the occasion of his marriage our friendship had undergone a severe trial, and did not withstand it.

He had to insure his life for the benefit of his wife and family—and heavily for a young man at the outset of life. He referred to me as his medical adviser and friend for a certificate of eligibility. I certified that I knew nothing to detract from the value of his life, except his notorious attack of apoplexy and his fits, "of the nature of which I had not any personal knowledge, never having seen him in one." He expressed great surprise and disappointment, pressed me very hard to alter the terms of my certificate, said gloomily that I had a much worse opinion of his case than he had ever dreamt of, and at length worked himself up to urge upon me that my opinion would put an end to his marriage. But as I was satisfied that a few years would end his life, I stood firm under this cruel trial; and we parted, coldly on his part —and cold he remained ever afterwards. I had the satisfaction, however, of learning immediately that I was not only right, but likewise his best friend. For

his principal trustee, who was also his agent, called on me on the subject, got my unreserved opinion, and, unlike Cullen himself, expressed great obligation to me for my firmness and frankness, because he had in vain tried to get at the bottom of "the fits" by referring even to those medical men who had witnessed them. "But now," added he, "the Insurance Directors are warned. I shall tell them they must take every means for satisfying themselves as to the nature of these fits; but that there must be no calling of the insurance in question hereafter on the ground of "information being withheld." The result was that the physician of the Insurance Company—a pompous, conceited, superficial man—himself certified the fits as being of little or no moment; and the proposal was accepted for a merely nominal and trifling extra premium. Cullen had the folly to twit me with his success; and the marriage—which never had been endangered, as his agent assured me, by this difficulty—was carried through. But in about two years more the Company had to pay £5000 to the marriage trustees. Cullen died in a paroxysm, and Edinburgh Medicine lost one of her most gifted and promising sons.

Edward Turner, like myself a chief companion of Cullen, possessed his quickness, liveliness, enthusiasm, and assiduity, but also a gentleness of speech and manners, an evenness of mind, and unselfish sweetness of disposition, which were wanting in our common comrade, and which made Turner himself a general favourite. He was born in Jamaica, of pure

English blood, eldest son of a prosperous island proprietor there, in the thriving slavery days of our West Indian colonies. In early boyhood he was sent "home" to Bath. He was first taught at a lady's school there, then transferred to the grammar-school of the city, and next lost for a time in a country medical apprenticeship, from which in three years he emerged exactly as well informed, he used to say, as when he entered upon it. Migrating to London, he now spent two useful years at the London hospitals; and thence proceeded to Edinburgh, where he studied for three years, and took his degree along with me in 1819. His early defects in fundamental education, which had been great, were partly made up here; and he became so prominent at the University, that he was appointed one of the presidents of the Royal Medical Society—a post of honour which at that time, and ever since, is very seldom attained by any but the choicest of our students. Without such distinction, and Cullen's influence with the hospital managers, he would hardly have obtained the appointment of Infirmary clerk. He joined the Fever Hospital in that capacity along with me; and thus commenced an intimacy and intercourse which never were broken for a day so long as he lived, except by distance.

After graduating he settled at once in Bath as a physician. But in a year's time his active mind tired of the little he had to do professionally; and in August 1820 he accompanied Cullen and me in a Parisian campaign. There he pursued at first chiefly

physic, but also for the first time physics. The latter study, and his weekly frequentation along with me of the Institute,—where Ampère in electro-magnetism, Magendie in physiology, and Pelletier and Caventou in the proximate analysis of vegetables, were at the time creating profound interest in their several researches,—turned his heart from medicine to pure science. Suddenly wheeling round from the worship of Æsculapius to the priesthood of Hermes, Turner, when we all separated in April 1821, proceeded, with very little previous knowledge of chemistry, to cultivate mineral analysis with Stromeyer at Göttingen. Here in two years he mastered chemical science, made himself a good algebraist, and became one of the foremost mineral analysts in Europe.

Choosing teaching for his profession, and chemistry for his subject, he resolved, with my advice, to commence in Edinburgh. He therefore collected around him the remaining unsettled members of his family—a clever boy, and four young, handsome, and accomplished sisters; and settled here in the autumn of 1823. During the next four years he delivered an annual course of lectures, taught advanced pupils practically, carried on various original analyses of new minerals, conducted along with me several experimental researches which were published in our joint names, and brought out his 'Elements of Chemistry'—a work which went through six editions in fifteen years, and during that time was admitted to be the choicest in the English language, and unsurpassed by any similar work in a Continental tongue.

In consequence of this career of usefulness and distinction, the council of the newly founded London University — afterwards University College, London—had no difficulty in appointing him their first professor of chemistry in 1827. His success was most remarkable. Six years earlier I found the medical students of St Bartholomew's School taking no interest whatever in chemistry, and absolutely ignorant of it. Six years later Turner had a class of 240 students; and from that time chemistry became a popular study at the medical schools of the metropolis.

But while in full career towards high rank in the history of British chemistry his health broke down in 1834; his scientific labours came to an end; and, after several deceitful visions of improvement, he died in February 1837, in his forty-first year, of chronic inflammation of the stomach, ending in ulceration, death being accelerated by an attack of epidemic influenza.

I have always feared that his life was thus curtailed by slow constitutional injury, the result of his constantly working, both in Edinburgh and London, in an ill-ventilated laboratory.

His brother, William Dutton Turner, another Infirmary companion, also possessed excellent parts. He was far from being an idle student. But he had two mistresses besides physic—namely, music and the noble art of self-defence. Fencing and sparring were at that time fashionable with young men in Edinburgh, and Bill Turner made himself an adept in both. He was in figure very handsome, erect,

quick, pliant, six feet and half an inch in stature, therefore three-quarters of an inch taller than myself. In point of limb he was not so well proportioned as in chest and arms. Hence, though he looked my superior in muscle and strength, I could throw him in wrestling, though with difficulty, and could easily beat him in running, climbing, or leaping. But I was a mere child in his hands with "the gloves." For he was trained to perfection by George Roland, a famous teacher; while I gave up the noble art, because, though I learnt how to hit, my near-sightedness, by preventing me from seeing my opponent's eyes sharply, made warding a very uncertain perform ance. Music became a downright passion with Bill Turner. He had both a singing-master and a teacher of the piano; he found a place for a piano in his little Infirmary cabin; and he was perpetually heard sounding either his instrument or voice, or both. He thus made himself a fair tenor-singer, but it was *invitâ Minervâ*, and with much time and hard labour. Not long before he joined our Infirmary alliance, it was accidentally discovered that I too could sing—that I had a natural aptitude for music, inherited from my mother; but that my voice was a basso-profondo, therefore useful only in trio, quartett, or chorus. I was enlisted, accordingly, into a little hospital glee-party, one or two of whom besides Turner had been trained under masters. Thus it came about that, without tuition of any kind, even from my tutored companions, with no discoverable effort, and with very little consumption of time, I learnt to read off

my parts, and became gradually a rather prominent basso in certain small circles of musical Edinburgh. This was the foundation of a pursuit which, while I never sacrificed to it professional or scientific study, furnished ever afterwards a charming recreation, and was also an introduction to many cordial and delightful friendships.

Will Turner, a cheerful, sociable, amiable, clever fellow, kept quite clear of the dissipation into which his pet amusements led away too many young men of that day. But he spent too much time in training for them. Hence he had the mortification of being remitted to his studies on undergoing his examination before the Medical Faculty. Thus he gained the distinction of being the only one of our set whom that fate befell. But he soon picked himself up, and graduated in 1820. Immediately afterwards we sailed together for London, where we parted—I for Paris, he to settle in Spanish Town, Jamaica. He there became the leading physician, gave up entirely music and sparring, and devoted himself purely to medical practice and to money-making. After many years he revisited this country and Edinburgh—the same true gentleman as ever in mind and manners, but a sedate senior, his briskness and mirthful liveliness all gone the way of his boxing-gloves and pianoforte. I heard little more of him after his return to Jamaica until his death, which took place there about 1860.

George William Stedmann, a very tall, fair, slim, somewhat round-shouldered native of the island of

St Thomas, Scandinavian by extraction, voluble, sententious, satirical, but kindly and good-humoured, and a clever student, was a general favourite in a circle different from mine, but was also very much in our Infirmary squad, through his intimacy with Edward and William Turner. After graduating in 1821, he returned to his native isle, and settled there as physician, but died in ten or twelve years, leaving behind no trace of his early promise at the University.

George Douglas Cameron, younger brother of William Cameron, my predecessor in office in the Infirmary, was for many years the intimate companion of my hours of exercise, gymnastics, and amusements; but he was never a professional associate, being three years behind me as a student. He was a tallish, rather slender, handsomely formed, fair, very sinewy fellow; apt at all exercises; a fair scholar, not extensively read, but singularly prompt with all he did know; cheery, witty, affable, and consequently popular. Son of the minister of Kirknewton, who left a family of five sons and two daughters very poorly provided for—Douglas Cameron naturally held the mathematical bursary of the Earl of Morton, patron of his father's parish. But four years of study under Professor Leslie did not make a mathematician of him. He told me a characteristic trait of Leslie, who had the reputation, not undeservedly, of looking very sharply to all money matters. On joining Leslie's class the third year, he told the professor this was "the third time he had the honour," &c., &c., knowing that in all classes it was customary that a

third-year's student should pay no fee. "Oh! very glad, sir. But you hold the Morton Bursary for the encouragement of the mathematics, don't you? You have to pay your fee so long as you hold it." And so the poor scholar, with a bursary of £11, had to contribute four guineas annually for four years to the professorial income of the Chair of Mathematics in the University of Edinburgh.

After taking his degree in 1822, Cameron settled in Liverpool, but in a very few years died of consumption. The subsequent marriage of his youngest sister with my twin-brother, Alexander, connected our families together; but I have seen very little of the Camerons since his death. One only is now alive (1875), the eldest sister, wife of Dr Sillar, who has long resided near Sydenham Crystal Palace, and is father of the inventor of the A B C scheme for the purification of sewage water, and manufacture of sewage manure.

The last I have to mention of my intimate and most esteemed associates—the only one of those days now (1875) living—was Jean Charles Coindet, son of the discoverer of the medicinal virtues of iodine and its compounds. The father, one of the many talented natives of Switzerland who, for a long period after the outbreak of the French revolutionary war, came to study with us, carried off with him to his fatherland not only an Edinburgh degree, but likewise an Edinburgh wife. Jean Charles, thus a Scoto-Helvetian—like most of my companions, tall, handsome, and erect—was lightly made to look at, but muscular

and very strong, with small, yet manly, acute, lively features, and curly dark-chestnut locks; easy and agreeable in manners, highly educated, and possessed of a complete command of English. Among other accomplishments he had acquired a good knowledge of music, and was consequently, in part, the means of developing my small aptitude for that art. A certain stately reserve, natural to foreigners of his nation, was liable to be mistaken for haughtiness, and led even such men as Cullen to misjudge and depreciate him. But he and I have ever lived on the footing of the most intimate, cordial, uninterrupted friendship, and amid interchange of good offices. His discretion was equal to his great abilities, so that on various occasions I have profited by his opinion and advice. None of my youthful associates appeared to me to possess so many qualifications for success in life.

Coindet graduated along with me in 1819, after which he repaired to Paris, where we met again for a winter in 1820-21. He then settled in Geneva. But in the end of 1822 he had to revisit Edinburgh regarding family affairs arising from the recent death of his mother. Out of our renewed intercourse on that occasion originated our conjunct experimental inquiry on poisoning with oxalic acid, in the course of which I again had an opportunity of recognising his ingenuity and shrewdness. Towards the close of our work, Jean Charles was not so steady as at first in his attendance at the experiment-room. It turned out that he had been laying siege, by paternal example, to an Edinburgh lady — a valid apology.

With all his astuteness and discretion, he was a "simple inflammable" if a clever girl was by to kindle him. In his graduation days he was captivated by a well-known, fascinating, intellectual Edinburgh beauty, who declined, however, to leave her old father for a foreign land,—only, alas! to be swallowed up rather latish in life, after, it was said, many more refusals, by a wealthy but in the end sadly defaulting London alligator.[1] On the second occasion my comrade was more successful; not this time with beauty to dazzle him, but a plain, short, stoutish, yet amiable and accomplished girl, with whom pledges were interchanged. Dining out one day soon after his departure homeward, I was told the whole tale by my neighbour at table, a married protectress of his inamorata, with the further intimation that he was to return in the autumn to espouse her. I instantly turned sharp round to my informant, and said firmly, "He will never come," —and he never came. Oh fie, Jean Charles!

"L'aura che tremola
Tra fronda e fronda.
L'onda che mormora
Tra sponda e sponda,
È meno instabile del vuostro cuor!"

Coindet attained good medical rank at Geneva, became physician to its lunatic asylum, and wrote some useful papers on subjects connected with lunacy

[1] Difference between "attorney" and "solicitor" = difference between "crocodile" and "alligator."—Old English Proverb.

and sanitary statistics. But he did not win the distinction which his talents and early acquirements entitled me to anticipate for him. I have heard that his sense of superiority was not an element of harmony and popularity in a township of the magnitude of Geneva. The Coindet balloon needed more atmosphere to expand in.

CHAPTER VI.

INFIRMARY LIFE.

PHYSICIAN'S CLERK—DR JAMES HAMILTON, SENIOR—DR THOMAS SPENS—THE EPIDEMIC FEVER OF 1817-20—ITS THREE FORMS—ATTACKED WITH FEVER—SECOND ATTACK—TREATMENT OF THE EPIDEMIC—COLD AFFUSION—BLOOD-LETTING—CHANGE OF TYPE IN FEVER—TREATMENT OF DYSENTERY BY OPIUM, AND OF ACUTE INFLAMMATIONS BY OPIUM AFTER BLOOD-LETTING—BLOOD-LETTING IN ACUTE INFLAMMATIONS.

With such associates my hospital life passed most agreeably and most profitably. Commencing as William Cameron's substitute in the Infirmary, I served there for six weeks under Dr Spens. Soon afterwards I was appointed, along with Edward Turner, assistant, or physician's clerk, when Queensberry House, under Welsh for superintendent, was opened as a fever hospital, on account of the extensive spread of fever in the epidemic form among the working classes of the city. The physicians were the ordinary physicians of the Infirmary—Dr James Hamilton, senior, and Dr Thomas Spens. I was attached to the latter. Hamilton, then advanced in years, but wonderfully vigorous, was well known for his work on Purgative

Medicines, by which he reformed, but over-reformed, the intestinal neglects of his predecessors. He was known still better in town as the last gentleman in Edinburgh who adhered to the single-breasted coat, breeches, and black-silk stockings, shoes and shoe-buckles, ruffles and wrist-frills, and tri-cocked hat of last century; and a very handsome and picturesque figure he was in this quaint costume. He was a quick, lively humorist, singularly kind in heart and manner, and a truly active practitioner. He placed implicit faith in free blood-letting and profuse purging, in the lifelong adhesion of syphilis to the constitution, and the infallible necessity of mercury, course upon course, for its cure. Mercurio-syphilis and mercurial cachexy had no place in his nosology; or if they had, they were to be rooted out only by more mercury. He seldom spoke without trope or joke. Impelled by this necessity, he atoned for the gravity of his book on Purgatives by sending to all his friends who had it a too illustrative caricature etching, with the motto underneath—

> "Inveni portum . . . qui
> Æque pauperibus prodest, locupletibus æque,
> Æque neglectus pueris senibusque nocebit."

His colleague Spens, also not young, tall, slender, modest, almost shy, extremely kindly, and a thorough gentleman in manners and disposition, became much attached to me, and gave me his entire confidence in the treatment of his patients. He was a sound and successful practitioner, full of resources, free from prejudice and hobbies, always open to correction by expe-

rience, and free to imbibe novelties or discovery,—a physician of wider grasp than Hamilton. But his retiring manners, the prominence of Gregory and Hamilton in his younger days, and the distinction afterwards of Abercrombie and Thomson, kept him unjustly in the background on the field of Edinburgh practice. I know I learned much from him. Especially I acquired, through the confidence he put in me, that early reliance on myself as physician, and that freedom from all fear of responsibility, already mentioned, which have so greatly contributed to my success and to my comfort ever since in important professional conjunctures.

The fever of 1817-20 was the first which appears to have attracted notice in Edinburgh as an epidemic. It prevailed more or less in all great towns of the British Islands, with the exception, it is said, of Birmingham; and it was supposed at the time to have been the progeny of a bad fever which broke out in the garrison towns of the Continent after their sieges during the great Continental war in 1814. If so, the epidemic changed its characters in travelling to us. The Continental war-fever seems to have been partly a bad form of typhus, and partly enteric typhus. Our epidemic followed close upon the extremely defective crop of 1816, and a long period of little employment and defective food among the labouring classes in 1817; and in the several outbreaks which have taken place since, the same connection has always been manifest.

Three forms were easily recognisable. One was that which now gets generally the name of relaps-

ing fever, but for which I have never seen reason to adopt any other name than the synocha of Cullen's nosology. It was a pure fever, with intense reaction of the circulation; a very frequent, incompressible pulse; high animal temperature, often so high as 107° Fahr. in my own observation; great distress from a sense of intense burning heat; pungent heat imparted to another's fingers; incessant restlessness and thirst; not necessarily any local disease whatever; commencing with abrupt violence, ending abruptly between the fifth and seventh days with profuse perspiration, and for the most part, at least in first attacks, returning on the fourteenth day with the same abruptness and violence, to terminate for good in three days more—again abruptly, and again by profuse critical sweating. This was a form of fever entirely new to all living physicians. But they did not, according to more recent practice, salute, as a new and previously unknown fever, what evidently ranged itself under Cullen's definition of synocha.

The second form was a mild variety of typhus—which I need not farther represent than by referring to Cullen's definition and description of his "Typhus mitior," a disease both before and since, to the present day, a not unfamiliar acquaintance of every experienced physician. In the epidemic of 1817-20, typhus seldom put on its violent character, as described by the same author under the designation of "Typhus gravior." My impression is, that I myself had charge of only one case of that variety during the whole

presence of the epidemic; at any rate, it occurred rarely.

The third was intermediate in its characters between the two previous forms. For a week it was undistinguishable from the first form, or synocha. The symptoms of high reaction then gradually yielded to those of mild typhus, which continued till its close by gradual subsidence, usually in fourteen or seventeen days. In short, this form put on exactly the features of Cullen's synochus. It has been the rule for recent writers on fever to ignore that Cullenian species; but during the epidemic of 1817-20, no physician could ignore its presence. There certainly it was, in spite of the scepticism of "Young English Physic," who is prone to believe only in what he himself has seen, and will not grant the like privilege to his predecessors.

Of enteric typhus (typhoid fever) we saw nothing then, nor for many years afterwards. If it might have been overlooked during life, it could not have been missed after death. For our dissections were many, and, to meet the bias of the day for finding a local anatomical cause for all fevers, every important organ in the body was habitually looked to. Nevertheless we were constantly met with the want of morbid appearances anywhere, unless slight signs of vascular congestion in various membranous textures be considered such,—signs, however, which were probably nothing else than the result of the manner of death, by slow arrestment of the respiration under oppression of the brain.

This interesting epidemic was one of my chief subjects of observation and study for one-and-twenty months, when I exchanged from the medical to the surgical wards of the Infirmary. For five months of that time, however, my observation was confined to my own particular person, for I had in these twenty-one months no fewer than three attacks of fever, each keeping me off duty for six weeks or two months. But these opportunities were by no means unprofitable or neglected. My form of fever was pure synocha, in which the mental faculties were seldom obscured. I could observe, as well as recollect; and thus I got valuable information, both as to the phenomena of the disease and as a guide to treatment. Most of my hospital associates were attacked—the two Turners, indeed, alone escaped. To keep seven offices supplied, twelve principals and deputies were required; there were seventeen cases of fever in two years among these twelve, of whom five had it twice, and I three times; and all but one had synocha, that one having rather severe typhus.

I had been scarcely three weeks at my post in the fever hospital, when I was attacked suddenly—so suddenly, that in half an hour I was utterly helpless from prostration. I had nearly six days of the primary attack, then a week of comfort, repose, and feebleness, and next the secondary attack, or relapse, for three days more. My pulse rose to 160, and continued hard and incompressible even at that rate. My temperature under the tongue was 107°. My sense of heat was so great, that I suffered from it

intensely, with only a sheet for covering, an open window and opposite it an open door, and a current blowing across me during hailstorms in a very ungenial month of March. My restlessness was constant: I even got out of bed for variety, and lay upon the floor, which was put down by my friends to the account of delirium. But delirium I had none, till the crisis on the sixth day, after one of my medical attendants, Mr George Bell, had asked me "Whether I had been seeing any devils?" He had not left me long before devils enough thrust through the bed-curtains short tails and long noses, which I saluted with imaginary whacks from an ideal cudgel, accompanying the visionary performance with remarks so absurd, that my attendants had to quit the room to let loose their laughter. The primary and secondary stages ended, according to rule, abruptly by profuse sweating, under which the pulse fell in four hours to 70°; and I was left in elysium, which at first was rendered doubly delightful by the great accompanying prostration. At one period, when at the worst, I could see that my kind and anxious master, Dr Spens, as well as his aide-de-camp, George Bell, was much alarmed at my state. But although I had accepted Mr Bell's devils, I declined Dr Spens's prognostication; and when they went away, I told my father that I was sure they had given him an unfavourable report, but that he must be under no concern, as I felt confident I should get well. It is extraordinary, indeed, that in my six fevers, five of synocha and one of typhus, I never from first to last entertained any fear

of the result, but on the contrary felt sure of recovery. How was this? It has always been to me a mystery.

While convalescent, I was appointed successor to William Cameron as Dr Spens's resident assistant in the Infirmary. A majority of his patients were cases of the same fever. Hence in two months I was again seized, in August 1819, soon after graduating. With my brother Alexander and Douglas Cameron I went to spend part of my holidays in the west, first picking up at Irvine Cameron's brother-in-law, Dr Sillar, and then crossing from Ardrossan to Lamlash, in the island of Arran. When half-way across, three days after leaving the Infirmary, I was suddenly attacked for the third time by my enemy. Possibly a long and rather exhausting swim, the day before, had something to do with the germs of fever taking effect. We four swam out to the wreck of a large West Indiaman, which had been lost on the coast under very melancholy circumstances. The distance proved greater than it seemed. When we made more than three-fourths of the way, Sillar, who was well in front with me, suddenly confided to me that he was quite spent, and could go no farther. This was a fearful shock tc me, who had begun to think the wreck very far off. But I bantered, encouraged, and constantly talked to my companion, and swam very near him, and we reached our destination. After running for some time about the ship in a very warm sunshine day, we returned more easily with a flowing tide. But it was long before I recovered my natural heat. Whether this adventure helped or not, I was struck down

next forenoon in the Arran packet-boat so abruptly, that, when we landed less than an hour afterwards, I could not walk a short distance to the inn at Lamlash without support on each side. The noisy preparations for the Lamlash Sacrament drove us next day to Brodick, my companions conveying me, as their *impedimenta*, in a cart strewed with dried fern instead of straw. During this journey of seven miles I could lie quiet and in comparative comfort—an illustration of Dr Jackson's observations on the advantage of "gestation in fevers" in the West Indies. But on being housed and bedded in Brodick inn, my torture from heat and restlessness was as great as in my first attack. Next day I was transported in the packet-boat to the mainland, where I was assiduously watched by my companions in the hospitable residence of Dr Sillar, and recovered as usual abruptly by profuse perspiration on the fifth day. There was no return, or relapse, on this occasion. Neither was there any when I was twice attacked in 1832. Nevertheless the fever was on every occasion the same with the first in 1818, in every other character—a true synocha.

I well remember a somewhat amusing incident on our passage from Arran to Ardrossan, not very creditable to my western countrymen, but illustrating the integrity of the faculties in this fever. I lay alone on a mattress on the little cabin-floor, with the skylight removed for ventilation in very hot weather. A number of people were on board, returning from the Highland carnival of the Lamlash Sacrament-week,

and were desirous of resuming their whisky carousals in the cabin. For some time my companions persuaded them not to disturb the sick man, but told me what I might expect. Afterwards I was informed that the wretches were fully determined to enjoy themselves and their cabin-rights, but had again been prevailed on to abstain by the kind remonstrances of a clergyman-passenger. By-and-by, I was told that they had broken loose, become uproarious, and were quite resolved to come below, and that I must make up my mind to the tormenting companionship. "Can't you tell them," said I, "that I am a young doctor from the Edinburgh Infirmary, where I had caught the terrible infectious fever raging there?" My companions had not thought of that argument, which was most effectual. No attempt was made to intrude on me; and the fellows made ample room for me to pass as I left the vessel.

When this epidemic broke out in 1817, two methods of treating fever had been for many years accepted generally in Britain—Cullen's method by nauseating or diaphoretic doses of tartar-emetic, and that of Currie by cold affusion. The former was in constant use when I first entered upon office; but, though long persevered with through inveterate habit and routine, I cannot say I ever saw it do any good in our epidemic. The cold affusion was pushed to a crucial trial in the University clinical wards by Dr Home, who thought it useful. The form of fever, indeed, seemed eminently suited for Currie's remedy, the heat of the body was so intense. I was therefore

much disappointed with the inefficacy of my experiments with it under Dr Spens's directions. Nevertheless, in my own first attack, I insisted on a trial of it, and it was applied twice in one day by my father, who knew Currie, and believed in his remedy. On each occasion I had half an hour's rest and comfort, but eventually no permanent benefit; and the temporary relief was dearly purchased at the cost of the most agonising central headache it is possible to conceive, arising at the moment of affusion.

While these remedies were losing credit, blood-letting was coming into vogue; and in no long time it was employed universally and lavishly. It was used as early as possible, and pushed until the approach of faintness, which seldom occurred till twenty or four-and-twenty ounces of blood were withdrawn. Not unfrequently it was repeated next day. Such was the treatment in almost universal favour for fifteen years. But in 1833 I observed a change come over the main character of the fever—its strongly phlogistic type. No such change occurred in the second great epidemic of 1827-29. In the less widespread fevers, however, which ensued for some years afterwards, the rate and force of the pulse, heat of skin, and restlessness, became by degrees much less violent, although the nervous prostration was greater; typhus formed a larger proportion of the cases, and presented oftener its severe form; and the loss of blood, even in pure synocha, could not be sustained as before, so that faintness came on even after only five or six ounces were withdrawn. Accordingly, I

altogether gave up blood-letting in fever. Nor has it ever been revived since. The simple reason is, that although we have had two great epidemics since, in 1842-43 and 1847-48-49, consisting, as in the earlier epidemics, of both typhus and synocha in its relapsing form, there never has been again that high state of inflammatory reaction of the circulation which formerly made the treatment by blood-letting useful and practicable. It is in vain for recent authors on fever, who never saw it with its early characters, to say that blood-letting was a fashionable error, and the doctrine of change of type a mere apology to cover it. I have produced evidence, which no opponent has ever attempted to shake, that in 1833 I recognised the change of type before adopting the change of treatment.

Was free blood-letting, then, the right remedy for the first two epidemics? It gave great relief for some hours, and often broke the force of the fever permanently. Crisis by sweat sometimes commenced immediately after it, and was seldom delayed beyond twenty-four hours, so that the duration of the fever seemed to be shortened. We thought, too, that in this way many cases were stopped as synocha, which would otherwise have passed into synochus. Even in typhus it seemed useful, by lessening the cerebral oppression and other congestive symptoms. There are fallacies, it must be confessed, in the way of each of these conclusions. Still, on calm reflection, I think our inferences were sound. But at all events, there is no ground for the modern notion, that

permanent damage was done to the constitution by the free shedding of blood in those fevers. Convalescence went on as quickly, and was concluded as thoroughly, in those who were bled as in those who were not so treated. My companions in the end suffered nothing. As for myself, I was bled first to 30 ounces and next day to 20 ounces in my first fever; to 24 ounces in my second; and again to 24 ounces in my third,—all in the course of eighteen months. But my constitutional vigour was not in any degree impaired, so far as I could discover. I retained the same strength, swiftness, and endurance in all exercises as before my fevers; and I had no reason to complain of any falling off in vigour or steadiness in any mental pursuit.

The rule and practice in the hospital was for the physician's assistant to go round his wards every morning after breakfast, and ascertain the state of all his patients before the physician's visit, and to prescribe for them in cases of emergency; to accompany the physician at his daily visit at twelve o'clock, and report in a journal, to his dictation, each patient's condition and the treatment ordered; to see the treatment at once carried through in urgent circumstances, and to visit the wards carefully every evening, taking an account of all new cases, and prescribing what appeared needful in any. We made also a useful addition of our own, by agreeing that, when any of us was out at a late party, he should make a progress in the middle of the night through the whole wards of the hospital, and see that the night-nurses

were all awake at their posts. No training could be more thorough; and we added to its usefulness by often meeting in the evening, two or more of us together, over important cases, to discuss the diagnosis and treatment.

Among the numberless lessons thus received, the most important were the treatment of dysentery by opium, the non-mercurial treatment of syphilis, and the cure of acute local inflammations by opium, given immediately after free blood-letting.

The treatment of dysentery by opium alone, occurred to myself from observing that, by the time my patients came into the hospital, the discharges consisted of morbid secretions only, and that, from dissection in violent cases, Cullen was certainly wrong in adding to his definition of this disease, "Retentis plerumque fæcibus alvinis." I afterwards, in the autumn of 1829, had an opportunity of applying this simple treatment on an extensive scale. On that occasion Edinburgh was visited, for the first and last time in my professional life, by an acute dysentery of a very malignant type. In three months eighty cases were admitted into the Infirmary, and a fourth of them died. About thirty-five came under my own care, and I lost three only. I treated them all with two grains of opium frequently, until symptoms of narcotism began. With few exceptions, the success of this simple and pleasant method was complete and prompt.[1] I have constantly employed it since, and with equal satisfaction—giving up entirely the alternative use of

[1] Edin. Med. and Surg. Journal, vol. xxxi. p. 217.

purgatives, generally practised in this country since the recommendations of Sydenham.

To Hamilton I owe the next of my lessons—the cure of acute inflammations by opium after blood-letting. His own hospital-assistant, Mowbray Thomson, was seized one evening with symptoms of irritation in the kidneys, for which he took a warm bath. He got worse during the night, and next morning he presented well-marked symptoms of acute nephritis, with high fever. At twelve o'clock Dr Hamilton saw him, and directed me to bleed him at once to faintness, and to give forty-five drops of laudanum immediately afterwards. The loss of blood gave him directly great relief; he fell asleep a few minutes after taking the laudanum; he slept, with little intermission, for twelve hours; and he awoke free from all fever, and with no symptom of local uneasiness remaining, except, in the region of the kidneys, a slight sense of rawness, which gradually wore away. I have often followed the same practice in pleurisy, pneumonia, peritonitis, and acute rheumatism, with the same success, when resorted to early.

It is well known, however, that at the time now referred to — 1817-20 — and also for twenty years afterwards, the remedy trusted to chiefly, and often singly, for the cure of the acute inflammations, was blood-letting. It was indeed prevalently employed in all diseases, if attended with high reaction of the circulation. For many years past, on the other hand, blood-letting has been entirely given up in almost all

these diseases, so that I question whether any man under forty-five could now perform what is really a rather nice operation to perform well. The present generation of practitioners, indeed, have not only given it up, but are constantly railing at their precursors for their blindness and destructiveness in ever using it at all. My general answer is, that acute local inflammations, during the first half of my life, were attended with a violence of arterial action unknown in the latter half; and that this is the simple reason why blood-letting was adopted in the early, and abandoned in the later, period. The younger race of physicians may follow their leaders by denying the occurrence of any such change in the constitutional character of disease. But they can be no fit judges, who were not practical observers of both phases of the case; and all my professional brethren old enough to have seen both, agree with me that for a long time past they have never met with such pulses, for force and hardness, in pneumonia, pleurisy, nephritis, rheumatism, &c., as they constantly encountered in their early days. Moreover, how is it that at the present time any attempt to bleed a patient with inflammation fails, through faintness coming on with the loss of a few ounces of blood, while formerly we took 20, 30, even 40 ounces before that object was attained? Why was it that these free evacuations of blood were instantly followed by amazing relief, often permanent, sometimes issuing in abrupt arrestment of inflammation? Why was it that no ultimate harm arose to the constitution? I at least never

saw any, although I rigorously followed the rule to bleed till faintness approached. Undoubtedly some heedless men carried matters too far. I never, like my colleague, Dr Graham, bled a patient to 72 ounces! But I admit to having once bled a powerful muscular negro to 50 ounces, for violent pneumonia; and, on recurrence of the symptoms in thirteen hours, to 40 ounces more, with Dr Spens's concurrence. This man, however, made a good recovery, and left the hospital apparently no worse for all his loss of vital fluid. One error was certainly not uncommon —repeated blood-letting in the advanced stages of acute inflammation. For my part, I soon learnt that nauseating doses of tartar-emetic, or diaphoretic doses with opium, were both more effectual and more safe, when inflammation had continued for some days, and above all, when the patient was exhausted by the repeated loss of blood.

Here I leave the question to be settled by posterity—when, in the revolution of time, they see cause for making trial again of blood-letting in the acute inflammations.

CHAPTER VII.

GRADUATION—ROYAL MEDICAL SOCIETY.

AWKWARD PRELUDE TO EXAMINATION — EXAMINED BY GREGORY, MONRO, AND RUTHERFORD—A TURBULENT HIBERNIAN—A TRIAL FOR LIBEL IN THE ROYAL MEDICAL SOCIETY — *COMPARATIO LITERARUM.*

As 1819 wore on, it became time for me to prepare for graduation. At that period three years of University attendance were sufficient; but as I was in no haste, I took four. I had not been an idle student at any class, and my Infirmary pursuits gave me enormous advantages. I went, nevertheless, to be polished by a "grinder,"—much for the same reason which led me to treat my first fevers with tartar-emetic—because everybody did it. But my excellent grinder, Dr Peter Reid, father of Dr Boswell Reid, the chemist, a good classical scholar, and accomplished gentleman, honestly told me at my first lesson that his instructions were not necessary, and would not allow me to go on. Plainly, indeed, examination must be on a faulty system, if a diligent candidate, with such superior opportunities of practical study as I had

enjoyed, could not satisfy the examiner without aid from the grinder. I tried to "read up" too. But, having got through one subject, on proceeding to another the previous store seemed to me to vanish; and express reading was abandoned also. I fear I became careless, and too secure; for on the Saturday before the Monday when I was to appear before the Medical Faculty, I got leave of absence for a day's walk with three companions to Rosslyn, Hawthornden, and Lasswade. We had a charming excursion in a glorious June day; but we came to grief near the end. One of my companions had imbibed too much Lasswade ale at our rural dinner, and became quarrelsome in his cups on the way home, challenging every man to fight whom we met on the road.

At last his challenge was accepted by a carter, more tipsy than himself, whose wife was endeavouring to lead him in the straight way. Unluckily this adventure happened at the entrance to the village of Liberton, whose natives, then a rascally set at the best, at once joined the fray, and assailed us all indiscriminately. We were well mauled, and would have been treated cruelly but for the humane interposition of the women. I was struck down by a heavy blow on the outside of the left eye from one man, while I was defending myself from the attack of another. I took my bloody and dust-covered companions to my Infirmary room, where they were well washed and brushed into respectability before going home. I then became alive to the horrors of my probable

appearance before my examiners on the following Monday with a black eye. I therefore determined to lie awake all night, with cold wet cloths constantly over my bruise. I succeeded till morning approached, when I dropped asleep. But instantly I started broad awake, dreaming that I was before my examiners, and that Dr Gregory's first question was—"Dic mihi, domine, unde venit hicce oculus cœruleus?" I was delighted to find, however, at dawn, that though there was great stiffness, soreness, and tenderness over the whole anterior temporal region, there was little swelling and no discoloration. But I cannot remember ever to have spent such a night of anxiety and apprehension.

The custom then was for the Medical Faculty to meet for the examinations successively at one another's houses, and for the host to bear the chief brunt of the duty. Dr Gregory examined me for an hour on the anatomy, physiology, and diseases of the stomach—their treatment, and the chemistry of some of the remedies mentioned. I have not since heard so masterly an examination—so thorough, and yet so fair a scrutiny. Each of the five other professors then put a few questions on desultory subjects. Of these I recollect only Monro's and Rutherford's. Monro chose for his subject concretions in the stomach. Never having heard of such a thing,—I have never met with a case of the kind, but once saw at a Medico-Chirurgical Society meeting a large ball of human hair which had been taken after death from the stomach of a hysterical girl,—my answers were given

from acquaintance with intestinal concretions, a favourite study both of Dr Monro himself and of his father. The Doctor was satisfied, although assuredly no such concretion has ever been formed in the stomach; but as I knew intestinal concretions well, my answers were accepted until he arrived at the treatment. This I had to spin out of my own brain; and on being pushed by him for more remedies, I proceeded, with the aid of my old engineering propensities, to invent an instrument for the extraction of the offending intruders. Monro thereupon wound up the dialogue by asking—"Vidistine unquam, domine, tale instrumentum usitatum?" To which I replied, somewhat coolly, and in doubtful Latin, too—"Nec vidi, nec audivi." Dr Rutherford, who followed last of all, probably regarding me as too confident and easy, resolved, as it seemed to me, to cool my conceit with a subject very much out of a tyro's way. Throwing botany aside, which it was said he never cared for, he asked me the symptoms of the descent of a calculus from the kidney. But fortune had favoured me by presenting a characteristic case of the kind about a fortnight before, so that I had the needful answer at my finger-ends.

The subsequent acts of examination consisted of a written commentary on an aphorism of Hippocrates, a consultation on a case drawn up by a professor, and the defence of a thesis. But as these exercises were all written at home, they were actually often the composition of the candidate's grinder. Mine, however, were all done by myself, and I even composed the

Latin of my thesis, which indeed was never put into English, and was merely purged of a few errors by my father.

I do not recollect whether, on the graduation-day, my thesis—which was on the epidemic fever of Edinburgh, and had at least the merit of being original—received commendation or not. But I remember the reception which that of Dr Stroud on gout met with from Gregory. Stroud, afterwards a physician in moderate practice in London, was a grave, formal Englishman, very prolix in conversation, and extremely addicted to punning. He spent much time for two years in reading every book upon gout which was to be found in the Edinburgh libraries; and he contrived to make his thesis a condensation of them all, so that he could quote them all as references. The analysis was in one division of the treatise and the references were in another. The candidates were curious to hear what Stroud would get for his wonderful pains as a compiler—especially as gout was well known to be the forte of his examiner; but all that Gregory said, after calling out "Domine Stroud," was, "Librum scripsisti, domine, haud thesin."

The usual decorum of our graduation-day was disturbed by a strange academical interlude. A turbulent Hibernian, Sheil, chose the University hall, and the morning when most of the candidates had assembled for graduation, to assault with his cudgel a little countryman of his own, Macarthy, on some paltry quarrel. But Macarthy, a much less man than

his assailant, sprang upon him, twisted the shillelah out of his hand, and belaboured him with it effectually. Sheil's imprudent achievement having been brought before the Senatus Academicus, his friends became anxious to learn what was brewing for him, and naturally applied to me for information. I was able to assure them that unless the culprit was prepared for expulsion from the University, he should at once anticipate all farther proceedings by an ultroneous and abject apology; and I warned them that expulsion from one university would shut the door of every other university against him. The apology was proffered without delay, and accepted; and so Sheil escaped the just consequences of his great folly and little valour.

In spite of his unpopularity, Sheil once had honour thrust upon him by the popular voice in an odd way. The four annual presidents of the Royal Medical Society have always been the *élite* of the advanced students and young graduates; and, with few exceptions, they have distinguished themselves afterwards in professional or scientific life. In 1819, the members, about 150 in number, were much divided in opinion at the election, on account of the number of able candidates. Many, therefore, in order to secure the success of three of their favourites, threw away their fourth vote on some one who, they thought, had no chance of being chosen. Such a man was Sheil—a clever debater in the Society, but rude and unscrupulous, and therefore much disliked. To any one surveying the company for the purpose, nobody would

appear so suitable for a sacrificed vote. But so many agreed in this conclusion that Sheil was returned fourth president.

In the session of 1819-20 several able papers were read in the Medical Society, and ably discussed. But on the whole the members shone chiefly in the Society's private business. In that year a great occasion arose for oratorical display. A clever poetical lampoon appeared on the library table, describing at considerable length, in ludicrous colours and rather libellous terms, one of the Society's most exciting debates. The members were thereby thrown into a great ferment, and much curiosity was felt as to the authorship. All acknowledged the cleverness of the production, and this induced the author in an unlucky hour to print and publish it. The Society applied to the Court of Session for an interdict against the publisher, on the double ground that one of the Society's fundamental laws prohibited the publication of its transactions without its consent, granted by a resolution; and that a lampoon, abounding in falsehood and in matter amounting nearly to libel against individuals, was injurious to the interests of a body established for such purposes as the Royal Medical Society of Edinburgh. The Court granted the interdict, and all unsold copies were delivered up and destroyed.

At the same time traces of the authorship, ably followed up, all centred on Thomas Haycraft, a silent member, and not otherwise remarkable. He was thereupon brought to trial before the Society for

breaking the law against publication. The chief prosecutor was the senior president, Dr Stroud, of gout-thesis memory, and the chief defender was Dr Conolly, afterwards the able author on insanity, and superintendent of Hanwell Asylum. Stroud's charge, long and prosy, was nevertheless a good specimen of close and convincing circumstantial evidence. Conolly's speech, too, was admirable as a defence, and satisfied many. But he made one unlucky hit. It was strange, he said, that the prosecutor, who made much of the *comparatio literarum* against the accused, had so little skill in handwriting as to have read the genuine signature of a letter "T. Haycraft" as "J. Haycraft," and had indicted him under the name of John, while his actual Christian name was Thomas. I was no debater, because I had joined the Society quite recently, and had a dread of extempore speaking. But I got the signed letter and the manuscript of the poem; and I pointed out that in the former the T was written exactly like a J, and that every capital T in the poem was written in precisely the same way. When the debate was concluded, Stroud, who could easily see that the sense of the Society was with him, offered, on the part of the Prosecuting Committee, to abandon all further proceedings if Haycraft would confess, apologise, and do his best to suppress all further dissemination of the poem. To the mortification of the kindly Stroud, his proposal was greeted by Haycraft's friends with derision and an outcry of unfair play, and, after a brief consultation between him and Conolly, the

proffer was declined. The Society found Haycraft guilty by a large majority. Stroud then renewed his offer, even in these triumphant circumstances, and though he was himself the chief object of the lampoon. The offer was now accepted, and Haycraft escaped expulsion—a nice question, however, arising, whether, by the vote of guilty, he was not, in terms of the Society's by-law, *ipso facto* expelled.

This was my first essay in the *comparatio literarum.* My subsequent position as Professor of Medical Jurisprudence led me to study this branch of evidence more attentively, and with the light thrown upon it by my elder brother and some of his brethren of the Bar. I found that the members of the Bar held such evidence cheap, and when unsupported, worthless; but that Solicitors and Writers to the Signet attached great force to it. Long afterwards, I had an excellent opportunity of seeing that the former estimate is the more correct one, and that great caution is necessary in taking resemblance as proof of identity of handwriting.

The late Dr Skae, who acquired deserved reputation as physician and administrator in the office of superintendent of our great lunatic asylum, was elected in opposition to the full weight of a then dominant party in the management. The treasurer, one of that party, and who had long been virtual head of the managers —an able official, but "a dour fellow"—could not brook this disappointment, and seemed to take every opportunity of finding Skae in the wrong. I, on the contrary—notwithstanding that I too had voted for

Skae's antagonist—determined to support him after his appointment, and was confirmed in this resolution when I saw how he was set upon, and that he had to contend against heavy odds. At last the treasurer thought he had got Skae on the hip. An advertisement appeared in a Dublin journal, bearing that the daughter of the chaplain to the Asylum had died there at a certain date. The newspaper was sent to several officers of the Asylum, and to the chaplain himself. The poor man being a bachelor was in great dismay, and appealed to the treasurer for redress. The treasurer wrote to the editor of the newspaper for the MS., and having got it, recognised, as he thought, the handwriting of Dr Skae. He then put the necessary documents before a banker, an engraver, and a skilled Writer to the Signet, all of whom agreed with him as to the identity between the MS. of the advertisement and Skae's undoubted handwriting. The treasurer then put the matter before the House Committee, seven in number, of whom I was one. The documents were handed round, and each member in succession, including two Writers to the Signet, shook his head and lamented that there appeared no doubt of the identity. I came last in order, and was shocked for a moment by the very great general resemblance; but after a minute's scrutiny, said I was obliged to differ from them all; that I had been taught by eminent counsel to distrust the *comparatio literarum;* that Dr Skae's handwriting was of a common sort, and that I had seen many similar to it; that the general resemblance did not hold in

particulars, because in the advertisement, two capitals, D and R, were written quite differently from those in Dr Skae's letters, and there were lesser differences in some of the small letters also; that the identity must be complete to make out an effective *comparatio;* that I had such trust in Skae's character, as to believe him incapable of so heartless, paltry, objectless a trick; and that we must find further evidence before we could adopt any practical conclusion from the manuscripts. A re-examination convinced most of the managers, but not the treasurer, that I was right. He asked me rather pettishly what further evidence I could expect. "Excellent evidence," I replied,— "that of Dr Skae himself." "What!" said he; "do you think I am to go to Dr Skae and ask him if he wrote that advertisement?" "No," I rejoined; "for if you did, he would probably knock you down. But the advertisement must have been written by some one very familiar with the Asylum, so that Skae probably knows the handwriting. Say so to him, and ask him whether he knows it." "No," said the treasurer; "I will not do so." "Oh, very well; give me the advertisement, and I shall ask him." But the other managers interposed, his own friends among the rest, and told the treasurer they could see no reason why he should not put such a question by authority of the House Committee. He then consented. Skae knew the handwriting at once, and pointed out the real offender in a gentleman who had been till lately a frequent visitor of the Asylum, but who had been interdicted at Skae's own request.

As to the general question of the value of evidence from the comparison of handwriting, all my experience shows the danger of trusting to it when unsupported. In the first place, I have repeatedly met with great natural resemblance in the handwritings of different men. But, what is of more consequence, forgery of handwriting is far more easy than most people will believe. Once, in company—when, in reference to a notorious trial for forgery which had been the subject of general interest, several persons present, and among them several lawyers, expressed their opinion that their signatures could not be imitated—the late Mr Lizars said that, to an engraver like himself, nothing was easier, as he could show by imitating the signatures of all round the table; and I saw him imitate them all with complete success. On a subsequent occasion, when I was dining with a large party at Blackwood House, the residence in Nithsdale of the late Mr William Copland of Colliston, the conversation turned upon the circumstances of a recent extensive forgery; and our host, in the course of our colloquy, said with emphasis he would defy any man to forge his signature. As I have always been prone to rebel against defiance, I did so on this occasion; and on returning in the evening to Dalswinton with Mr Leny, whose guest I was, I asked him for a letter of Copland's, to try my hand for the first time. The imitation was declared to be perfect. Mr Leny then proposed to me to try the more difficult mercantile signature of our common friend, Mr Alexander Maxwell, a Liverpool merchant and neighbouring

landed proprietor. I succeeded perfectly with that also. At dinner next day at Dalswinton House, where both gentlemen were present, both of them acknowledged that the signatures were faultless. But Maxwell, a very shrewd man, added, "There's no doubt it is my signature; but I never signed my name in the middle of a blank sheet of writing-paper." So, too, on the occasion of the —— —— scandal, I made trial of the accuser's MS., which was rather a remarkable one for ugliness and want of parallelism —not easy, one would think, to imitate. Nevertheless I wrote fifteen lines of a letter so identical with his handwriting, that I thought of showing it to him, in order to convince him of his incaution in charging a heinous offence on evidence of that sort. As I, who had never tried such work before, could at once do these things, how easy must it be for many to forge the handwriting of those whose characters they may wish to destroy!

CHAPTER VIII.

INFIRMARY LIFE ENDS—RESURRECTIONING.

HOUSE-SURGEON—SIR W. NEWBIGGING—CONSERVATIVE SURGERY—MEDICAL KNIGHTHOODS—SIR GEORGE BALLINGALL—RESURRECTIONING.

I MUST now return and wind up the history of my Infirmary life. After graduating in 1819, I left the hospital early in August for a month's holiday—which, however, I spent in fever, as already told. On my recovery, I became, by exchange with Dr O'Brien, house-surgeon to Mr Newbigging, afterwards Sir William Newbigging. There were then in the Infirmary two surgeons, Messrs Gillespie and Newbigging; two assistant-surgeons, Messrs Wishart and Joseph Bell; and one consulting-surgeon, Professor Russell.

Mr Newbigging, like all his colleagues a general practitioner rather than a surgeon proper, was nevertheless an able surgeon and a good operator. He was held, indeed, at that time to be the best operating surgeon in Edinburgh next to Mr George Bell; though he and all others were destined to be soon

totally eclipsed by Liston, who had already begun to manifest his marvellous power in operative surgery. During my nine months' service in the capacity of house-surgeon, Newbigging had no fewer than seven cases of operation for stone, all of them successful, and two in unfavourable circumstances. One of the two was a shattered, aged man, who had several calculi as large as marbles, and a whole quarry besides of small ones, which were carefully, but slowly, swept out with the scoop. The other was a strong, short, Forfarshire man, a poacher probably, who had a seven-ounce hour-glass calculus, of which more than one-half was firmly incased. Newbigging gradually cut the retaining collar of membrane with his fore-finger nail, liberated the stone from its setting, and extracted it, not without employing considerable force. Neither of these two men had a single troublesome symptom afterwards, and both recovered well. The grateful poacher subsequently sent me from the Loch of Forfar a pike forty-eight inches in length, and twenty-seven pounds in weight. Had I been then aware of the rarity of such a monster, he would have been now represented by a skeleton in the museum. But he was put into the Infirmary cook's hands, by whom he was served up as a plain-boiled fish, without appropriate sauce, so that he was pronounced on all sides to be absolutely uneatable.

I cannot say that I contracted either much respect or great affection for the operative part of surgery. Operations are at best the *ultimum remedium* of the surgeon. In my time conservative surgery has

encroached on operative surgery, and defrauded it of many of its victims; and this encroachment must go on more and more with the advance of knowledge. Conservative surgery, with its mainstay surgical judgment, is more rarely met with in excellence than operative dexterity. It will always command high respect from all but the superficial, too easily dazzled by the so-called brilliancy of operations. It is the department of surgery which most richly deserves the honour conveyed in the ancient statutory declaration of the Emperor Frederick II. in 1260: "Chirurgia, quæ est pars medicinæ." It indeed approaches pure physic so nearly that a physician may acquire and practise it. The second Monro was a physician and conservative surgeon. So was Professor Russell, *sed longo intervallo.* Monro has never been spoken of as an operator, but he was a great consulting-surgeon.

My favourite branch of surgery, therefore, was conservative surgery. A house-surgeon, indeed, has little opportunity of cultivating operative surgery, as his province restricts him to minor operations only. I took uncommon pains and much pleasure in ensuring the healing of wounds "by the first intention,"—by clearing the surfaces carefully of blood, fitting them nicely to one another, avoiding sutures whenever this seemed possible, and uniting the lips by numerous, narrow, adhesive straps, with very small intervals to allow the escape of redundant serum. I remember a young, fine-looking seaman, fresh from a long voyage, being admitted into the Infirmary with

six long and deep gashes on his face, some of which crossed each other, and a seventh on the upper part of the neck, dangerously near important vessels. The wounds had been inflicted by half-a-dozen ruffians, who, without provocation, assailed him in the dusk as he was returning to Leith from Musselburgh races, threw him down, and brutally slashed him with knives. Bleeding had ceased. I took nearly an hour to bring the wounds all very close with narrow strips of adhesive plaster, so that no defective contact was left anywhere. The wounds all healed at once without a trace of suppuration; in five days there was only a faint red line to denote the seat of each wound; and had the man's brutal assailants been caught and tried, there is little doubt the traces of injury would have been so obscure, that the offenders would easily have got surgical witnesses to deny altogether the severity of the wounds which had been received. I have often found since that even deep cuts of the fingers and hands may be similarly healed up with certainty, so as to leave eventually scarcely any mark, by means so simple as tissue-paper prepared by spreading over it a strong solution of isinglass.

I could mention other instances of success in the department of conservative surgery; but these successes never tempted me to become a surgeon.

My service with Mr Newbigging as house-surgeon led to an intimate friendship with him, which lasted as long as he lived. He belonged to the highest class of general practitioners in the city—those who prac-

tised physic and surgery as family medical attendants, but not either pharmacy or midwifery. Edinburgh has long been famous for this class of professional men; and Newbigging was one of the best of them. But he was wrong when he allowed himself to be knighted.

It is odd that when the honour of knighthood has been conferred on a medical man in Scotland, it has been owing to some adventitious circumstance, and not to professional distinction. Mr Newbigging's case was no exception. Highly respected as a medical practitioner and citizen, he never contributed in any shape to the advancement of medicine or surgery, and his knighthood was the reward of the political services of a relative. I wish my professional brethren would set their faces against these accidental knighthoods, which are no credit to medicine, and create a differance in rank among equals without adequate reason. At an early period I did my best to be a good example. On the accession of King William IV., in 1830, a deputation from our Senatus Academicus carried to London a University address to his Majesty. It was customary to confer a knighthood on some leading member of such a deputation. Principal Baird, with whom Dr Monro was going, asked me also to be one of the party, because he should propose me as recipient of the honour, since Monro declined to undergo the metamorphosis. I also declined, because I held that no member of the medical profession ought to accept a knighthood put in his way in this accidental manner, or for any other reason

than pure merit in medicine. Dr Ballingall, however, desired a knighthood for its own sake, and thought he should get it on the score of having been, during his nine years of army service, assistant-surgeon in the Duke of Kent's regiment. He went up willingly, therefore, with the University address; and Principal Baird proffered his claim to Sir Robert Peel, then Home Secretary. But Peel replied, "No, Mr Principal! on the ground of eminence among your professors solely, and on no other account." When Ballingall returned as Sir George, much surprise arose among his colleagues and other friends; and when Dr Baird told his story of the event, many expressed their opinion that he had not been quite straightforward in his share of the transaction.

During my period of service in the Infirmary, resurrectioning—the robbing of churchyards for supplying the dissecting-rooms—was carried on with great vigour. The work was done so boldly as to involve great risk of capture; nevertheless no capture was ever made. The resurrectionists in Edinburgh were chiefly the assistants of the several teachers of anatomy. With several of them I was well acquainted; so that I came to know the whole process, and was told sundry startling exploits of the adventurers.

The time chosen in the dark winter nights was, for the town churchyards, from six to eight o'clock; at which latter hour the churchyard watch was set, and the city police also commenced their night

rounds. A hole was dug down to the coffin only where the head lay—a canvas sheet being stretched around to receive the earth, and to prevent any of it spoiling the smooth uniformity of the grass. The digging was done with short, flat, dagger-shaped implements of wood, to avoid the clicking noise of iron striking stones. On reaching the coffin, two broad iron hooks under the lid, pulled forcibly up with a rope, broke off a sufficient portion of the lid to allow the body to be dragged out; and sacking was heaped over the whole to deaden the sound of the cracking wood. The body was stripped of the grave-clothes, which were scrupulously buried again; it was secured in a sack; and the surface of the ground was carefully restored to its original condition,—which was not difficult, as the sod over a fresh-filled grave must always present signs of recent disturbance. The whole process could be completed in an hour, even though the grave might be six feet deep, because the soil was loose, and the digging was done impetuously by frequent relays of active men. Transference over the churchyard wall was easy in a dark evening; and once in the street, the carrier of the sack drew no attention at so early an hour.

Operations in the country were necessarily conducted at a later hour. Certain country churchyards were selected for the convenience of approach, and their distance from houses. Although there was more risk in such circumstances, owing to the necessity of using a gig, and the inquiries that were apt to take place at toll-bars, no one was ever caught. But

narrow escapes were sometimes made. On one occasion discovery took place at the moment when the sack with its contents was hoisted beside the charioteer. He instantly drove off, while the rest vanished in the darkness in different directions. The charioteer had three miles to drive. Thus he easily distanced his pursuers, left no trace of his destination on reaching town, deposited his booty in an undiscoverable "sanctum," and disappeared with his horse and gig before the hue and cry reached the outskirts of the city. Subsequent search by the police proved unsuccessful; but the police were very inefficient in those days,—or perhaps their instructions were, not to be too zealous.

So long as Dr Monro and Dr Barclay were the only lecturers on anatomy, resurrectioning went on smoothly, because each had by common consent his own territories, on which the other did not encroach. But when Liston also became an anatomical teacher, he paid no regard to these prudent arrangements. Competition thus arose; and at last it was no uncommon occurrence for one party to have a look-out-man sitting on the churchyard wall in the dangerous dusk, ready to drop down on the first appearance of the rival party, and appropriate the grave by striding across it. My hospital comrade, Mowbray Thomson, had a risky encounter in this way. Though his assistantship with Dr Barclay necessarily ceased on his becoming an Infirmary Resident, he had so great a passion for adventure, that he used to drop from his window, scale the city wall which then

bounded the hospital grounds to the south, and join his former companions in their unholy occupation. On the occasion referred to, he was perched on the churchyard wall as sentinel, when Liston hove in sight with his assistants, and a notorious London resurrectionist, Crouch, who had made the metropolis too hot for him, and had been taken into Liston's pay as an instructor during his rustication in Edinburgh. Thomson jumped into the burying-ground, sat down across the grave, stuck his digger into it, and when the intruders followed him, claimed the grave as his. Liston and Crouch first jeered him, and then threatened to remove him by force. But, as they drew near for the purpose, he presented a pistol in the face of the foremost, and swore he would defend himself to the uttermost. More altercation ensued, during which succour to the weaker party arrived in the shape of Thomson's companions. A general row appeared imminent; but Liston thought better of it, and left the enemy in undisturbed possession of their claim.

The rashness and haste consequent on the want of a mutual understanding, occasioned repeated exposure of the spoliation practised, both in town and country. Stricter watch was therefore established, and resurrectioning became a more difficult and more unsafe undertaking. The town authorities, however, did not suspect that the work was done in the early evening, and set their watch too late; and in the lonely country churchyards the watchmen were apt to be inefficient through cowardice. William Cameron met with the

following exciting illustration of this. He went, with the necessary *corps d'élite*, to a lonely churchyard seven miles from town, separated from the highway by a hedge, a hollow grass field, and the churchyard wall. On arriving at the place, they observed light issuing from the vestry window. A scout was therefore sent across the field to reconnoitre. His companions, by the light of a young moon, could see him crawl across the grass, and stealthily raise his head over the wall, when the vestry door opened, a man stepped out in the bright light, a shot went off, the scout dropped down motionless at the foot of the wall, and the shooter retired within the vestry, and shut the door. A cloud obscuring the moon, prevented Cameron from recognising the state of matters. A consultation was held at the hedge whether their comrade should be succoured; and a second scout was about to proceed towards him, when he appeared at the other side of the hedge, laughing at the issue of his adventure, and explaining that he had merely ducked down to hide himself when the watchman stepped forth to fire into vacuity. They then remained quiet for half an hour, when the same farce of firing was repeated, to frighten away depredators, and satisfy the parish that watch was faithfully kept. Taking advantage of the discovery that the churchyard was never patrolled, the spoilers entered it during an interval between the alarms; and as their object lay on the other side of the church from the vestry, they carried on their operations, with a short interruption as firing-time came

round, completed their work, and decamped with their plunder.

Gradually the public became better informed, and more effectual measures were taken to prevent graves from being disturbed.[1] Iron bars were riveted over the coffins, or the coffins were secured with iron guards buried over them, which, in due time, could be removed, but not without a key. The anatomists were then reduced to supplying themselves from London. But as the price of a body rose sometimes to £20, the temptation at home was great; so that there arose in Edinburgh, as in London, a professional corps called body-snatchers, consisting of a few of the greatest scoundrels in the community. With such men the passage was easy from stealing the dead to murdering the living, in order to maintain their occupation. Thus originated the horrid crimes of Burke and Hare in Edinburgh, and of Williams in London. The anatomists were then threatened with starvation, when at last, in 1834, the Anatomy Act of Warburton provided them with means without crime, relieved the public mind from all anxiety, and put a stop finally and entirely to resurrectioning and resurrectionists.

[1] Numerous massive iron cages, presumably intended for protection of family burial-grounds from resurrectionists, still remain in some of the older city churchyards of Edinburgh.

CHAPTER IX.

STUDY IN LONDON.

I LEAVE EDINBURGH INFIRMARY—ADVANTAGES OF RESIDENT MEDICAL APPOINTMENTS THERE—FALL IN LOVE—VOYAGE TO LONDON—ST BARTHOLOMEW'S HOSPITAL—BECOME PHYSICIAN'S PUPIL—THE MEDICAL STAFF—INADEQUATE MEDICAL SERVICE—NON-REGULATION OF PATHOLOGICAL DISSECTIONS—DEFECTIVE MEDICAL INSTRUCTION—SURGERY AT ST BARTHOLOMEW'S—ABERNETHY—LAWRENCE—ASTLEY COOPER—DEATH OF MY FATHER.

In April 1820 my appointment as house-surgeon came to an end, and I left the Infirmary. I did so with great regret, and should have felt more, had not several comrades left it about the same time. I look back on this period of my life with much satisfaction. All disagreeables have been forgotten amidst the remembrance of happy days, spent, with clever, attached companions, in acquiring a vast fund of practical knowledge, as well as in pleasant recreations. I doubt whether any other medical school offers such a union of advantages as our resident Infirmary officers enjoy,—ample materials for study; able superiors, engaged in teaching, and ever on a level with the times; a confidential position of much trust; companions from

the ablest students of a populous University; museums and libraries freely open; professors and others, to whom it is a labour of love to foster diligence and talent; a city abounding with all sorts of rational amusement; and good society, easy of access.

As my appointed period of service drew towards a close, it was resolved that I should have the advantage of adding to my other excellent opportunities of professional study a visit for a year or more to London and Paris. I cannot say with whom this project originated—whether it was with myself or my father. My impression is that it was proposed by my father, but had been probably suggested by my elder brother, John, who, as I had good reason to know in recent times, from his widow, had, at an early period, descried in me favourable prognostics, and began to take active interest in doing what an elder brother could towards enabling me to fulfil his expectations. Moreover, was it not an immemorial custom of my educated countrymen, of any tolerable condition, to add to their Scotch grinding a little French polish?

I left Edinburgh in May 1820, sailing on the 5th in one of the famous Leith smacks, the Matchless. I quitted my home with a tumult of mingled feelings, at the time very difficult to analyse. There was the reluctance to exchange a body of attached comrades and friends for a multitude of entire strangers,—the parting with my family, all much attached to one another; with my noble father especially, vigorous indeed, but now sixty-nine, and recently escaped from a most formidable illness; with my twin-brother,

from whom I had never been separated for more than a day, and whom I could discern watching from the pier-head my departure so long as my figure remained distinguishable; with my mother, who unsuccessfully endeavoured to suppress her anxiety. On the other hand, there was the prospect of adventure,—of seeing lands, new and remarkable; of making friends in a country which had been so recently, so long, and so bitterly our dangerous enemy; of gratifying the craving for an independent roaming life, which my Highland excursions had engendered.

But I had also recently contracted a new tie, which still farther distracted my thoughts, and tinted the whole of my subsequent life. While residing in the Infirmary, I began, for the first time, to be a good deal in the young female society of the town—at dinners, concerts, and balls. In short, I "came out." I was a shy fellow, however, towards the fair sex, because, having no sisters, I knew not their ways. This drawback did not prevent me from secretly nourishing sundry successive *amourettes;* but it prevented me from making any of my charmers aware of her success. At last, in the spring of 1820, Cupid taught his pupil a very different lesson.

My father's family had been long intimate with the family of a second cousin of my mother, Mr David Brown, a retired St Petersburg merchant, owner and occupier of the property in Lauriston on which was built, in more recent times, the Merchants' Maiden Hospital.[1] Dying while I was a boy, he left his widow

[1] Now Watson's College, a day-school for boys.

a comfortable income, and the charge of no less than three sons and six daughters, the latter well known in a wide circle of friends for good looks and fine dispositions, and several of them for talent and accomplishments. With the two youngest, Harriet and Jemima, I had often amused myself, as with lively clever children: for even the elder of them was eight years my junior in age. During the greater part of my Infirmary residence I had lost sight of them. But on resuming my intimacy in their house in the spring of 1820, I was suddenly struck with the discovery that the elder of the two had passed into the bloom of early alluring youth. Her countenance was not more attractive than her intelligence, so that I could not refrain from studying the surprising change. At last, at an April dancing-party at her mother's, while we were partners, we interchanged sudden looks, which in a moment taught me that Cupid's arrow is scarcely a figurative weapon, and which also told me a flattering tale.

I would not venture even on the following summary of an event, the details of which belong to what is inviolable, were it not that the consequences powerfully affected my progress in life.

In the first instance, my conquest, or enchainment, furnished a strong stimulus to exertion in one beginning life, and depending on himself for establishment in it; and this I found during my now approaching absence from home. But it soon began to appear that the course of true love never runs smooth, in ordinary affairs such as mine, any more than in a

drama or a novel. And indeed I have sometimes thought that the history of our attachment, told truly in its details, might furnish ample materials for one of those minute domestic novels, which are so much in vogue with both writers and readers of the present day. There was, for example, a very youthful cause of disturbance, a girl a few months under fifteen, but three years beyond it in point of mind and conduct; a deep, intense, and overpowering attachment, defying every obstacle; soon a mutual pledge; and an early and long separation. Then there was during my absence a treacherous but baffled agent-internuncio; also an unsuccessful military siege; evident dissatisfaction on the part of both mothers, ere long partners in widowhood. On the other hand, there was no want of good friends, all, of course, of the sympathetic tender sex, who held out encouragement and could create opportunities; by-and-by came an estrangement, apparently complete, lasting for two years and more, without any clear or sufficient reason, expressed or even thoroughly understood—consequently requiring for reconcilement only the intervention of some warm-hearted common friend, well aware of all our history. Such a friend appeared upon the scene, and then all estrangement came to an end. Our attachment was resumed as intensely as ever, and all the more easily and sincerely because it was broken without reproaches or other rough terms on either side; and so our marriage took place eight years after our first confession.

The vulgar saying, that "marriages are made in

heaven," is liable to exception. To judge by the issue, some marriages originate rather in the other place. Providence surely directed mine: for although the relatives of both parties looked at least coldly on all previous passages in this act of our life's drama, and although the numerous blood-relations of the bride even remained aloof from the ceremony, all parties on either side without exception in a very short time came to be attached to us in close social intercourse, and in cordial friendship and love.

I have said that as soon as this new relationship arose, it proved at once a strong incentive to make the most of my opportunities of study in London and abroad. In the second place, the estrangement that ensued two years later exerted an equal influence to the same effect in far more critical circumstances. The rupture took place soon after my induction as Professor of Medical Jurisprudence in the end of February 1822. At first the blow fell heavily and forebodingly upon me. A sort of paralysis came over my energy, and even my thoughts. But very soon a powerful revulsion succeeded. I saw that intense application to the work of my professorship was no less a duty to my office, than it would be the most effectual distraction from my miseries. So I said to Medical Jurisprudence,—

"Come Furia disperata ti sapró perseguitar."

My University colleagues, and no one more than my attached friend Dr Duncan, jun., urged me, because the time for preparation before the month of May was very short, to postpone my first course of

lectures till the subsequent summer. But they knew not the potent reason for my beginning at once, and gave me a credit for my determination which I scarcely deserved. The work I went through during the next two years, in compiling my lectures and in carrying on original experimental research, was very great; for to these ends I devoted my whole time and my whole mind. The result was, that I saw I was evidently "making my mark."

Should I have done this but for the interrupted current in the course of my affections? Should I have attained this prompt success, had my time and my thoughts been perpetually liable to be diverted from the commanding claims of duty by the alluring claims of love? I do not know. But I can see now how wisely Providence ruled my trials, as well as my successes, for my own good, and that of others dependent on me.

But after this digression let me resume the regular course of my narrative. On the voyage from Leith we encountered perpetual head-winds and a heavy sea, but with fine sunshine and a clear sky. Consequently our vessel, which was of a class that no other could beat under sail in such weather, took, nevertheless, eight days and nine nights before landing us at St Katherine's Wharf, London. Byron, defining the various antidotes to love, mentions various physical troubles as being

> "dangerous to his reign,
> Sea-sickness, death."

But he says nothing of the opposite effect of the great

ocean on those fortunates who, like myself, are little apt to undergo that sea-evil. The vast blue plain on every side, the perpetual beautiful curve of the horizon, the whistling of the wind through the rigging, the "swish" of the surf across the vessel's bows, her triumphant swing as she mounts over the waves, the incorrigible idleness of a novice to a sea life, all conspire to compel a ready surrender to day-dreaming. My dreaming had no sea-sickness to contend with; time seemed unavailing to check it; and on the seventh day it withstood sudden reduction to salt provisions and sea-biscuit. We had troops on board, and in the cabin thirteen officers, young, yet veterans in actual warfare, all proof, as well as myself, against the sea, and all blessed with rare appetite and sound digestion. Consequently it was no wonder that even our well-found vessel ran short of fresh provisions on so tedious a passage. But on nearing the coast of Norfolk, the smack's boat was sent ashore for a supply of fresh meat, eggs, and butter. At last we arrived off Gravesend, but with the falling tide, so that we had to lie there several hours till it turned. Landing, therefore, with some of my fellow-passengers, I ascended a height close by, on which there was at that time a windmill and nothing else.

I never shall forget the view from the windmill-hill of Gravesend. The weather, until the morning of my leaving home, May 5th, had been very cold all spring in Scotland, and consequently vegetation had not begun there; but balmy west winds set in that very day, and the same change had taken place nearly a

week earlier in the south of England. Hence the grey carpet of winter in the North was suddenly exchanged for the gorgeous vernal green of Kent and Essex spread around me on all sides in the freshness of a fortnight's growth. In truth my delight continued without abatement till I was welcomed by Cullen in the lodgings he had engaged for me beside his own in Well-Yard, Little Britain—a puny row of students' lodging-houses, which has since disappeared to make way for city improvements. I then at once awoke to the realities of my new life, and set about turning my new position to the best account. This was easy with the aid of Cullen, who had been six months a surgical pupil at St Bartholomew's, was well acquainted with Mr Lawrence, its assistant-surgeon, and with both house-surgeons, and had served for some time as prosector to Mr Abernethy, at that time Lecturer on Anatomy and Surgery in the Hospital School. My destination, however, was medicine, not surgery. I was accordingly installed as physician's pupil for a term of six months on payment of a fee of sixteen guineas. But, alas for St Bartholomew's! the pupil found no teacher, and in the medical wards much more to teach others than for himself to learn.

The medical service of St Bartholomew's Hospital was, in my eyes, the oddest possible. Three physicians—Drs Haworth, Roberts, and Powell—divided the patients among them. Each went his complete rounds once a-week only. On another day he saw a crowd of out-patients, new cases,—which were admitted only on that occasion,—and any old cases in emergency.

In his absence his patients, as well as all those of his two brother officers, were nominally under the care of the very worthy and very little apothecary of the hospital, Mr Wheeler, who continued to wear the attire of the apothecary of last century, and was chiefly remarkable otherwise for his rare familiarity with the writings of Hippocrates. In our occasional controversial conversations he floored Oxon., Cantab., and Edin. alike, by quoting long passages in the Greek original from the Father of Physic, from whom and his disciple we were glad to make our escape by prompt assent. The patients, however, were really under the care of such of the physicians' pupils as considered themselves qualified to take in some measure the same charge as that committed to the resident physician-assistants in Edinburgh. These pupils in the summer of 1820 were only three in number,—Dr John Bamfielde Daniell, who afterwards settled at Bristol, but died a good many years ago; a little, shy, quiet, diligent Cantab., whose name I do not remember, and who never became one of our little circle; and myself. Dr Thomas Watson, afterwards at the head of the medical profession of England as Sir Thomas Watson, Baronet, was on my arrival about to leave the hospital and study at Edinburgh; so that at this time my acquaintance with him, which became intimate later in life, lasted only a few days.

At St Bartholomew's it was the rule that surgical students did not visit the medical wards, unless duly entered as physicians' pupils also; and it may be easily understood that few would purchase that privi-

lege at the cost of sixteen guineas, after expending the same sum for becoming pupils in the surgical department. But by use and wont physicians' pupils were allowed to go freely into the surgical wards, and I often took advantage of this privilege. Thus I soon got intimate with Richard Welbank and John J. Ledsam, the house-surgeons: for there were resident surgical-assistants, although, very oddly, no similar medical officers. Ledsam was a short, dark, quick, sharp-faced man, who became a general practitioner in an English eastern county. Welbank was a rather tall, fair-complexioned man, querulous in disposition, retiring in manners, of cultivated mind, a delightful companion, and a faithful friend. Not long after his service in St Bartholomew's, he published a good paper on the use of corrosives, especially nitric acid, in the treatment of hospital gangrene; and altogether he displayed promising qualifications for success as a London surgeon. But his success was far behind his hopes and merits, owing to his quiet demeanour, and instinctive dislike to the pushing practices generally found most serviceable in the metropolis. He lived in a quiet way, as a general practitioner, till 1870, much esteemed by a circle of warm friends in the highest class of London professional men.

In a short time Dr Roberts and Dr Haworth allowed me to look after their patients, and do as I liked with them. Not so Dr Powell, a big, boisterous man, who talked loud, gave his orders peremptorily, and would permit no interference in any circumstances.

I saw various instances of deplorable results from

the inadequate service in the medical department of the hospital. One, which shocked my medico-chirurgical principles, I can still remember distinctly. I was asked by one of the upper nurses (sisters) to look at a man who had been three weeks in the hospital with severe and obstinate "rheumatism" of the right shoulder, for which the joint had been repeatedly blistered in vain. On examining him, I found the humerus completely anchylosed to the scapula, the consequence of unsuspected inflammation of the interior of the joint, and produced, in all probability, before his admission.

The worst part of the hospital discipline at St Bartholomew's was the regulation—or rather non-regulation—of the pathological dissections. We had vast opportunities for following that branch of professional study: for many cases of organic disease were admitted in their advanced stages; Mr Stanley, the anatomical demonstrator, was an ardent pathologist; and leave from the relatives of the deceased person was not, as in Edinburgh, a necessary condition. There was, therefore, usually a race between the relatives and the students—the former to carry off the body intact, the latter to dissect it. Thus dissection was apt to be performed with indecent, sometimes with dangerous haste. It was no uncommon occurrence that, when the operator proceeded with his work, the body was sensibly warm, the limbs not yet rigid, the blood in the great vessels fluid and coagulable. I remember an occasion when Cullen commenced the dissection of a man who had died suddenly one hour before, and

when fluid blood gushed in abundance from the first incision through the skin made in drawing his knife from the upper to the lower end of the sternum in the usual manner. Instantly I seized his wrist in great alarm, and arrested his progress; nor was I easily persuaded to let him go on, when I saw the blood coagulate on the table exactly like living blood.

I never got reconciled to this summary, off-hand procedure. I had not forgotten, and greatly preferred, the rule, which custom had made law, at the Infirmary of Edinburgh, where no pathological inspection was performed till twenty-four hours after death. On no occasion did I ever depart from that rule while I was resident medical or surgical officer, or allow it to be violated when afterwards I was for many years physician in the Infirmary.

It was a frequent subject of wonder to me, that so little use was made of the medical wards of St Bartholomew's for the purpose of instruction, and generally that education in medicine proper was almost entirely neglected. While the medical students were only three in number, and, indeed, being all graduates, were no longer "pupils," though called so, the surgical students, amounting to several hundreds, never entered a medical ward, and, though pupils in reality, got no more information in medical practice than the few crumbs they might pick up now and then during the medical treatment of surgical cases. Nevertheless, men with only this training were passed annually in hundreds by the London College of Surgeons into the ranks of the general practitioners of England. I could

thus easily understand subsequently the superiority of the general practitioners educated at Edinburgh, where medicine proper held a prominent place in the system of hospital instruction, the preference in which they were held in England, and their success and reputation, especially in most of the large English county towns. Their credit, indeed, still subsists, although the system of education has been altered much for the better in the London hospitals.

I cannot recollect having got a single useful lesson in the treatment of disease from the three physicians of St Bartholomew's Hospital. But I had many opportunities of applying to practice the lessons in treatment which I had learnt at home. The great preponderance of chronic cases of organic visceral disease, the result of confining regular admission to one day in the week, supplied also excellent means for improving my experience in diagnosis; and the same circumstance furnished the dead-room with most ample materials for pathological study. It may be not undeserving of notice that, at this period of ardent investigation in pathology, the epidemic influence appeared not to have reached the physicians of St Bartholomew's. I never saw one of them at a pathological dissection. Stanley, the demonstrator of anatomy, afterwards surgeon of the hospital, was indefatigable in his attendance; but as for Doctors Powell, Haworth, and Roberts — well! *requiescant in pace!* They trusted the advancement of pathology to the members of the hospital establishment who were misnamed "physicians' pupils." There are

more objects than the Latin *lucus* named because they are really the reverse of what their name denotes.

Through the liberality of the surgical officers of St Bartholomew's Hospital, I was able to pick up good instruction in surgery from my occasional visits to their wards. Abernethy and Vincent were the surgeons, Lawrence and Earle their assistant-surgeons; but all four seemed to be on independent service. Abernethy, a very little man, but in figure and countenance uncommonly handsome, had not strength enough to become a great operator. The diagnosis and constitutional treatment of surgical diseases were his favourite field of practice; and in these branches of consulting practice he was at this time *facile princeps* among London surgeons. He was an early cultivator of what is now aptly called "conservative surgery." But I do not remember that term as in use at the period in question; and the surgical tendency certainly was, to fly too precipitately to the knife and saw. That never was Abernethy's fault. He was a good operator when driven to operate; but he disliked it. Cullen, who was his anatomical assistant, told me he had seen him in his retiring-room, after a severe operation, with the big tears in his eyes, lamenting the possible failure of what he had just been compelled to do by dire necessity and surgical rule. His *ratio medendi* was very simple. In all surgical diseases the digestive organs are apt to get out of order—the stomach, and the bowels, and the liver, but the liver

at the root of all. Without sound digestion there cannot be healthy nutrition, or, without that, vigorous surgical reparation. Therefore the liver must be stimulated by alterative doses of calomel and blue-pill, the stomach by some bitter infusion, and the bowels by a gentle saline aperient. This treatment, combined with a rigorous dietary, was found to suit excellently many London dyspeptics who had no surgical complaints; and consequently Abernethy's consulting-room soon became that of a physician much more than of a surgeon. Many tales were told me of the eccentric, witty, and often rough way in which he disposed of these patients, especially the great men and ladies who showed a tendency to maintain their greatness while putting themselves into his hands. For Abernethy would admit of no other lord in his consulting-room than himself. But the best of these anecdotes are matters of history, and my hands are full of other subjects. Lawrence, his assistant-surgeon, a tall, strong, fine-looking man, was fast attaining the high place as a surgeon which, in a few years, he occupied and long maintained. I never saw him operate, but had at times occasion, in conversing about his cases, to admire his acuteness and precision. He thus, on one of these occasions, won over Cullen and myself to his cause as disciples and believers. A big man had a large, vaguely defined tumour in the inside and middle of his bulky, fleshy thigh. Cullen pronounced the disease to be sub-fascial abscess, and fluctuation to be recognisable. The two house-surgeons denied the presence of fluctuation. I was

asked to add my opinion. I clearly felt very deep-seated fluctuation, and maintained with Cullen the necessity of opening the abscess. The question was stated to Lawrence the same day at his visit; who, after deliberate examination, called for his bistoury, and with one deep, unsuccessful plunge, and then another still deeper, let out sixteen ounces of purulent matter.[1]

The great surgical luminary of London at this time was of course Astley Cooper, of the hospital-school of Guy's and St Thomas's. Thither it behoved us to resort, in order to grasp the idea which we had formed of a great operating surgeon. I cannot say we were fortunate. The operator was Travers, and Cooper was assistant. The operation proved to be the removal, from an old woman's temple, of a tumour as big as a small fist, and uncertain in nature. It was generally thought aneurismal. But a lancet, thrust deep into its substance, bled it a little only. A cross incision being then made, and the skin dissected back on each side, the tumour was seen to be fungoid. Cooper declared decidedly that it arose from the diploë between the tables of the temporal bone, and had subsequently produced absorption of the bone. I was informed, however, by several bystanders, who had an opportunity of examining the parts, that the finger could be passed between the tumour and the bone into the cavity of the skull, and that in all prob-

[1] I have frequently heard my father tell that, when the first incision failed, he set his teeth hard and growled in an undertone, "A little deeper, Mr Lawrence."—J. C.

ability the tumour arose from the dura-mater. A disputation concerning its nature was carried on—very unfittingly, I thought—across the old woman's head by the two surgeons. Cooper described the whole case aloud to the students ; and the sufferer was sent back to her ward with the assurance—that her tumour would be sliced afterwards. This operation was analogous to the first I ever witnessed. A man in the surgical wards of our Infirmary had a very large, round, and flat tumour, unequivocally fungoid, occupying part of the occipital, frontal, and both parietal regions of the scalp, and thus covering a full fourth part of the whole skull. The surgeons supposed the morbid structure was confined to the scalp, and determined to remove it. Speedily it was found, in the course of the operation, that the bone beneath had extensively disappeared. One opinion was, that the tumour had arisen from the dura-mater ; another, that it was rooted in the brain itself. Unlike Cooper and Travers, the surgeons did not put off the slicing of the tumour, but levelled it at once. It refused, however, to submit to such restriction ; cerebriform matter steadily welled out through the great aperture in the skull ; and of course the man died in a few days. The horrid spectacle was a severe trial for a new-fledged student of operative surgery ; and it was only by exercising strong determination that I escaped fainting. But the two preceding cases, with not a few others since, have long ago convinced me that operative surgery is a far more uncertain art than its votaries maintain, or the public have been led to

imagine; that it is no more, as the Emperor Frederic II. described it in the thirteenth century, than "pars medicinæ"; and that he might justly have added "etiam ejus opprobrium,"—when not conservative.

On the occasion of a visit to the Southwark hospitals, I heard an obstetrical lecture by Dr B——, who was at this time one of the most popular of the medical lecturers in London. But I was unable to see just grounds for such reputation. The worst character of this lecture was its shocking indecency without any qualifying wit, together with a spurious learning founded on much quotation from authorities of little or no weight; and the whole was delivered with a flippant fluency, which I thought a very bad example to be held up for the guidance and imitation of students. It was a complete puzzle to me how the same class of young men should tolerate such lecturing, and at the same time admire the pure thoughts, sound reasoning, beautiful language, and noble delivery of John Abernethy.

Through means of Cullen I made the acquaintance of Abernethy, Lawrence, and Stanley, and my friendship with the last two continued to the close of their lives. Through Somerville, my Infirmary companion, I became acquainted with his father, physician of Chelsea Hospital, and with that gentleman's celebrated mathematical wife, from both of whom I received much kind attention. I had no opportunity of perceiving that she had mathematical genius, however, for mathematics never was the subject of conversation: she appeared

simply the polished, highly accomplished, unaffected lady of her household. I likewise renewed my intimacy with Dr and Mrs Tweedie, who had left Edinburgh a few years before to settle in London. Mrs Tweedie, *quondam* Hannah Brown, my contemporary among the six fair daughters of Lauriston Lane, and the frequent dancing-school partner of my boyhood,—though unaware of the new tie created between us by her young sister,—was, with her husband, most kind in giving me opportunities for relieving my student-solitude. Thus, with occasional visits to the sights of London, my hospital pursuits, and the companionship of the witty, talkative Cullen, my days flew by fast and happily.

But towards the end of June I was summoned to what proved the deathbed of my father. I travelled north by the mail-coach, day and night,—a most exhausting journey,—starting at 8 P.M. of the 22d, and arriving at Edinburgh at 4 A.M. of the 25th, but only in time to see him expire, without his being conscious of my presence.

This was the first felt blow which Death had dealt me. I had not yet lost a single friend, or any relative with whom I had enjoyed any social intercourse. Nevertheless, the blow did not fall so hard as I anticipated from the noble character of my father, his evident strong attachment, and the constant interest he had taken in my studies—an interest so great in his own favourite branch, the higher mathematics, that he made of me almost a fellow-student; for his figure, carriage, and gait, his countenance and its

varying expression in conversation, his very mind, were all so impressed on me, that they seemed, as it were, ever with me or within call. Time, which tries all things, has tested me for a term fast approaching to sixty years, but has left that inward feeling unblunted. When my father left this life, I could well have said of him—

"Questi che mai da me non fia diviso."

CHAPTER X.

PARIS.

SECOND VOYAGE TO LONDON—BRIGHTON TO DIEPPE—FIRST IMPRESSIONS OF FRANCE—DILIGENCE CÉLÉRIFÈRE—THE PALAIS ROYAL—A USEFUL HINT IN THE THÉÂTRE FRANÇAIS—LESSONS IN FRENCH AND DANCING—FRENCH "VICTORIES"—FRENCH SOLDIERS—MORTUARY SERVICE—MARS, GEORGES, AND TALMA—INTRODUCTIONS—AN HEIR TO THE BOURBONS.

THE natural result of this break in our little household would have been a termination to the training on which I had entered; for though my father's income was good, and could have stood the cost well, the patrimony he left me was very small. But my brother John, who had begun to make way at the Bar, and who must have had firm faith in my destiny, at once decided that the course settled for me by my father should be followed out, and that the necessary outlay should be provided for, before the equal division of his property between his three sons.

So it was resolved that in August I should set off again for London on the way to Paris. But there was another hard blow awaiting me before my departure. A few days previously, she who was the chief spring and ruler of my life, urged that our

attachment should now be avowed to her mother. I assented because I anticipated no difficulty, as both of us thought that her mother had seen through our secret. But, to my discomfiture, she appeared to be taken completely by surprise; and at once, though in kindly terms and manner, declined to assent to any intercommunication during my absence, that might imply her sanction. I pleaded hard for a milder sentence, but in vain. The only concession I got was a spontaneous remark at the end, in return for my exacted promise not to attempt correspondence—"When you come back, I may be glad to see you again." There was no help for me, therefore, but to provide indirect means, by which each might know something of what the other was doing, without infringing Mrs Brown's prohibition—and for securing this much we had common friends enough.

On August 3d, William Turner and I left Leith Harbour at 9 A.M., in the smack Matchless — I for the second time—under the skilful command of Captain Ord, and his fat jolly mate. The weather was at first calm and rainy, and our progress was consequently slow. But at last a favourable breeze carried us as far as Yarmouth Roads. Here we were brought to anchor on the evening of the 5th by a contrary south-westerly gale; for the long narrow channel of the roadstead between sunken sandbanks rendered tacking against a head wind dangerous at night, and indeed, as we saw, very sharp work even in the daytime. Before nightfall I counted 120 sail which were thus brought to anchor around us. All that evening

and most of the night we had a trying experience, from the constant rearing, plunging, tugging, and rolling of the ship at anchor in a heavy sea. Turner was taken very ill; most of our fellow-passengers were little better; but I alone, to my own surprise and the envy of my mates, kept head, legs, and stomach sound; and of me alone it could be said, "e su la prora cantando va." In the morning the gale moderated; we resumed our course, and, with almost perpetual tacking, we reached London on the 8th at mid-day. We had no other remarkable adventure of the nautical kind, except that in ascending the Thames, while a man was dropped astern in the ship's boat, the boat was swamped in a strong current, and the man swept out. A momentary sense of painful horror was instantaneously succeeded by a mirthful feeling, when I saw that he was a good swimmer; for I remembered once, in somewhat similar circumstances, while swimming with all my clothes and my hat on, having been the subject of merriment to unsympathising comrades.

Our party of passengers was a mixed but agreeable one,—three other doctors of medicine, like W. Turner, newly capped, viz., two humorous young Irishmen, Crawford and Corban, and a grave, middle-aged Englishman, Burton—an intelligent, hard-favoured, keen-eyed man, much refined by long service as a military surgeon; also Schetky,[1] drawing-master at

[1] Schetky, who became marine painter in ordinary to the Queen, lived to a great age: a sketch of his life was written by his daughter, under the title of 'Ninety Years of Work and Play.'

Portsmouth Naval Academy, and brother of a clever military medical officer well known to me; a very fine-looking spirited boy, Fergusson,[1] grandson of Admiral Viscount Duncan, on his way to enter the navy as a midshipman; two Sandhurst cadets, who seemed to think we were much edified by their relating how often they had narrowly escaped expulsion from college; a most original Devonshire horse-jockey, who amused us greatly with his horsey stories, especially after a friend he met on board filled him half-seas over; a real Cockney baker and his father, plump, shining, strongly developed in the animal regions of the brain, and promoted at dinner-time from the forecastle to the cabin, to play an excellent knife and fork with up-turned sleeves, yet also diverting people at other times as pattern specimens from the land of Cockaigne. There were likewise a few nondescripts.

We had not been long together when we discovered that we were a fortuitous congregation of musical atoms, which soon arranged themselves in harmony. Schetky played excellently Turner's violoncello, Corban played the violin fairly, Crawford the flute well; and Schetky, Turner, and I found no end of trios for tenor, counter-tenor, and bass. Time passed thus very agreeably in spite of baffling breezes, to the high approbation of the ship's company and the steerage passengers, and under the frequent applause of the many vessels which we passed near enough to be within hearing. But, if the whole truth must be

[1] Adam Duncan Fergusson, eldest son of Sir James Fergusson, Bart. of Kilkerran, died 1843.

told, the harmony of sweet sounds was apt to be frequently and abruptly interrupted by the nautical qualms of Turner and Crawford; and we had the ill-luck, in our fat mate's estimation, to stir up the storm of the 5th in Yarmouth roadstead.

The ascent of the Thames is an enchanting scene in such fine sunshine as we had the good fortune to carry with us. We passed among an endless succession of vessels of every denomination, and sometimes saw a grand man-of-war under full sail. The country before and behind seemed quite studded with masts; and the adjacent banks were beautifully decorated with corn-fields and woods, villas, villages, and towns, appearing, vanishing, and reappearing in a new aspect with the windings of the river. Of the towns the finest are Woolwich and Greenwich; and the Greenwich Hospital, once a palace, seemed to me, as beheld from the deck of our vessel, the finest public building I had ever seen. Near the East India Docks we passed that very dubious element of the picturesque, the remains of some pirates hanging in chains from tall gibbets erected on the sandbanks. It was told us that civilisation was determining not to bear such disgusting exhibitions much longer. A scene, which we witnessed frequently on arriving among the black-diamond vessels, appeared to me to belong to the same unlovely branch of the picturesque. In unloading the colliers, a gang of four coal-heavers—tall massive men, stripped to the skin far below the waist, begrimed with sweat and coal-dust—climbed together upon a scaffold, and at a signal sprang down simul-

taneously and disappeared, each holding by a rope above his head attached to a bar like the gallows. They appeared exactly as if they were so many villains launched together into eternity. Presently, however, they reascended, to go through the same exhibition. Extremely hard work it seemed,—supported, it is said, mainly on unlimited porter.

I rejoined Cullen in London, where we spent our time from the 6th to the 12th chiefly in revisiting old friends; and on the 12th, Cullen, Edward Turner, and I set off for Paris, accompanied by Woronzow Greig, son of Mrs Somerville by her first husband—a clever lively youth of sixteen, visiting Paris for a month under Cullen's guardianship. My object in Paris was to take merely a general view of medical practice in the hospitals, but especially to seek an opportunity of studying practically some of the highest branches of chemical analysis, carried on at that time with great ardour and singular success in the French capital.

In the morning we left London for Brighton on the outside of a splendidly horsed four-in-hand stage-coach, driven by a communicative facetious coachman. At Brighton, after much trickery and squabbling among the seafaring people on the beach, we were put on board the Dieppe packet, only a quarter of a mile off, in a leaky boat carrying twelve passengers, at the exorbitant charge of 3s. a-head. Nothing could be worse than the treatment we met with on this passage. We paid the Custom-house porters 1s. for not examining our trunks, 3s. to the rascally shoremen for

rowing us on board, two guineas for our passage of about one hundred miles across Channel, and 10s. for our dietary of milkless tea, bread, and putrid butter during our forty hours' voyage! We were also within an ace of having to swim for our lives. While on the point of getting on board the packet on her off side, a big clumsy bumboat under full sail, unaware of the presence of our boat, steered so close round the packet's stern that we appeared about to be run down by it. Our boatmen and the crew of the packet shrieked out a volley of abusive oaths. I sprang up with one foot on the gunnel, ready to leap into the water, clear of the coming crash; and amidst the general hubbub our enemy luckily passed us with a graze only. We were an entire day and two nights on this miserable voyage, and did not land at Dieppe till one o'clock in the afternoon of the 14th.

Frequent forethought proved no preparation for the change that awaited me on landing. The fishermen in bulky petticoats and unwashed faces; the Customs officers with cocked-hats, moustaches, and swords; the irregular houses, built chiefly of white-painted wood crossed with black beams diagonally; the female townspeople, all neatly dressed (for the feast-day of the Virgin Mary) in red petticoats, checked shawls, particoloured aprons, and enormous white mutches, kissing one another and chattering incessantly; the men bustling, attitudinising, and for the most part looking uncommonly fierce; the little lively horses attired in rope-harness;

the lilliputian stature of the troops we met returning from parade, with the ferocious countenances which their officers thought it right to assume; and the oddity of crowds of little boys and girls and wee bairns all talking French,—made an impression on me as if I had landed in a new world instead of a neighbouring kingdom.

Next morning, 15th August, we left Dieppe for Rouen, 45 miles, by the "Diligence Célérifère," a modern edition of the old French four-mile-an-hour diligence, and warranted to travel at the rate of seven miles. It was quite a wonder to see five little horses, three wheelers and two leaders, pull at even that humble rate such a gigantic lumbering vehicle as our diligence, consisting of a front "coupé" for four, a spacious "intérieur" for six, and a curtained "derrière galerie" for six more, and covered with enormous piles of luggage everywhere. It was charming to see that innovations in costume had not reached our postilion. He wore a broad-brimmed, high-crowned hat with a checked handkerchief for hatband; another large check round his neck; a very short, blue-striped, sleeveless, not over-clean jacket, his shirt-sleeves tucked up above the elbows; green-plush breeches, and prodigious boots reaching as high as the middle of the thigh, increasing in thickness of wood and leather downwards to the feet, and furnished on one side only with a rusty spur of terrific length. In front sat the "conducteur," equivalent to the "guard" at home,—a very communicative fellow, and a wag. Cullen posed him for reasons for the ponderous stiff boots. At last

he assured us that "les bottes enfin, messieurs, sont fort commodes quand la diligence vient d'être renversée." At the same time, he acknowledged that during the long time he had been upon the road, he had never known an overturn but once, when the postilion in a dark night mistook the way, and upset the diligence down a bank.

We slept at Rouen, and on the 16th we travelled to Paris, a journey of 90 miles. Passing St Denis, we entered the great capital by the Barrière de Clichy, where we were quickly *octroyé*, as it was easy for the Customs officers to discover that our trunks contained neither bottles of wine nor revolutionary *pétards*. We got at once excellent accommodation at the Hotel de l'Europe, close to the Bureau des Célérifères, the destination of our diligence.

After a very needful bath and an excellent dinner, finding that we were close to the Palais Royal, the centre and heart of Paris, I went thither with my companions. And what a spectacle for a set of novices! Round the vast corridors there slowly circulated a dense crowd of well-dressed people, among whom predominated the military and the frail portion of the fair sex,—the latter decked out as for a ball, and not a few of them gorgeously attired in silks and jewellery; the former wearing the same fierceness of look which attracted our notice among the officers at Dieppe, the only exceptions being the *gendarmes*, who were all mild-looking, prepossessing men, conformably with their character of being picked soldiers from the whole French army.

Next day we took a general survey of objects in our neighbourhood, found lodgings on the south side of the river, and in the evening went to the Théâtre Français. Here we met with a useful lesson. Seated together in the *parterre* before the performance began, and much excited by the novelty of our day's excursion, we—especially the ever-censorious Cullen—were freely intercommunicating comments more sincere than discreet on the many odd-looking people around us, when a pleasant French gentleman on the seat behind us, addressing Cullen in English, apologised for accosting him, and cautioned us to be careful what we said aloud to one another, because many Frenchmen now knew English, and there were police spies in all public places. I suggested that we should "kittle oor freen's lugs wi' a wee braid Scotch." We accordingly conversed a little in homely Doric, when our friendly neighbour candidly acknowledged, in reply to Cullen's inquiry, that he did not understand one word of our new language. Thus we owed to this kindly Frenchman two useful lessons for our guidance on French soil,—to be careful of what we said in public, and how safely to say what might be apt to displease listeners around us. I have often observed since how thoroughly the mingling of a little Lowland Scotch with genuine English renders that language unintelligible to a foreigner, however familiar he may be with it in its purer form.

Next day we got all housed in the Hotel Colombier, Rue du Colombier, a rather narrow street off the Rue de Seine, south of the river,—a favourite street,

as we were told, with the ancient French nobility. Here we were very comfortably lodged in "un apartement de six pièces," consisting of vestibule, parlour, and four bedrooms. Our residence being only a "hotel meublé," we breakfasted and dined, in Parisian fashion, at a neighbouring coffee-house and restaurant. Our parlour was frequented by crickets, but luckily by no other company. I made acquaintance for the first time with their extremely shrill chirping, which two of us, however, could not distinguish, owing to the note being too high in the musical scale for their organisation. When Woronzow Greig left us we became economical, and migrated to cheaper and separate rooms in the Hotel de Bussy, Rue du Bussy, in the "Pays Latin," not far from the École de Médecine.

We at once began our studies. Cullen, Turner, and I went in the early morning to the Hôpital de la Pitié, and after breakfast we all took French lessons from a rough-looking but very intelligent tutor, who soon materially mended our discourse. One refinement, however, in pronunciation we repudiated. All born Parisians spoke the letter *r* with as bad a burr as a Berwicker. Our teacher was a Parisian, and therefore said he, "Messieurs, on ne pa*r*le jamais bien F*r*ançais à moins que l'on pa*r*le g*r*as!" In the end he became content with the rattling Scotch *r* of Cullen and myself, but he could not overcome the liquid English form of it in the mouth of Edward Turner. Cullen also persuaded us to study what was then an essential part of French

education — dancing. A retired *second danseur de l'opéra* was accordingly engaged as a teacher, and severe were the lessons he gave us. At the house of a French banker, M. Robin, I had several opportunities of seeing what a quadrille was when gone through by eight accomplished dancers. It was really beautiful, but evidently a work of high art, every step being an elaborate *pas de danse.* Such caprioling was not to be attained with ordinary pains and training; and, indeed, Turner was told by a graceful dancing Dutchman that it took three years of teaching to make him what he was. Accordingly we began to tire ere long of our *second danseur.* I was the first to give in, satisfied with having acquired such a knowledge of principles as enabled me afterwards to criticise severely what was called at home "dancing a quadrille," and convinced that to acquire skill would demand too much application at the time, and be of little use afterwards in my own uncongenial country. Cullen persevered longer, but *invitâ Terpsichore,* and therefore making no great progress. Turner alone benefited, as he possessed lither limbs, and had got better rudiments in boyhood at a lady-school.

During the remainder of the forenoon I read a deal of French—not much medical literature, but Corneille, Racine, Molière, Regnard, Crébillon; also Voltaire and Rousseau, in order to learn what was held to have mainly tended to form the French revolutionary mind. In the afternoon we did the staple sights of Paris, and in our "courses," nothing struck me so forcibly

as the great prominence of the military element. In the vicinity of the Palace this preponderance was natural enough. But it was the same thing everywhere else—on the Boulevards promenades, in the public gardens, in the principal streets, in the theatres and other houses of public entertainment. In every assemblage of the people military uniforms caught the eye in all directions. Seldom a day passed without our meeting a regiment or two on the march through the streets—most generally a battalion of the National Guard. The love of military show and glory displayed itself broadly in all picture-galleries, except, I admit, that of the Louvre. The walls of the great picture-gallery in the Palace of Versailles were decorated with little else than the victories of the French armies. When in the gallery of the Luxembourg, we were attracted by a fine sea-piece, which represented a French frigate capturing a British man-of-war of seventy-four guns, but which also represented all the British tars fighting in scarlet jackets. "Oh," said one of us, "the seventy-four must have been compelled in a hurricane to throw her guns overboard." "And," said another, "she had somehow lost all her seamen, as there are only marines on her deck and rigging." While making these and other comments, we laughed so heartily that we were scowled at by the visitors around us, and at last silenced. We were still more amused on finding prominently inscribed, at the bottom of a long list of French victories on one of the faces of the Arc de

Triomphe, at the entrance to the Avenue de Neuilly, the word "Thoulouse." Luckily there was no "vieux moustache" near to take fire at our boisterous merriment. At the Sémaphore, on the hill of Montmartre, the keeper gave us a graphic narrative of the fighting around it, which preceded the capture of Paris by the Allies in 1814. We remarked that, when in any conflict his countrymen had the worst of it, their troops merely "se retiroient" — "se battoient en retraite;" but when successful, that their adversaries were "culbutés" — "renversés" — "exterminés;" so that, in short, it never came out how the Allied forces could possibly have won the day. After all, our telegraph-keeper was no more than an honest erring patriot, compared with that veracious model-historian Thiers, who, in his 'Consulat et L'Empire' (liii. Première Abdication), makes it appear that in the same battle 25,000 French almost repulsed 170,000 veteran Allied troops, and that with 10,000 more men they would have done so.

I had little opportunity of judging of the military training of French troops, having only once seen, and for a short time, a battalion at drill in the Champ de Mars. Moreover, I knew little of military drill at that period. But the men were manifestly below our own soldiers as to frame and strength. The finest men were the "Grenadiers à cheval," and grand looking fellows they were. Yet neither men nor horses seemed to me equal to the British Life Guards. The regular infantry we saw in Paris were almost entirely regiments of the Guards, said to be 20,000 in number,

and picked men. Their high bearskin caps gave them great apparent height; and broad white bands across the front of their tunics, in short stripes at the waist, but widening upwards till at the shoulders they stretched from point to point, were well contrived to make the chest seem broad, full, and shapely. But Turner and I, men of 5 feet $11\frac{1}{2}$ and 5 feet $11\frac{3}{4}$, frequently compared one another with the sentries on guard at the Palace and other soldiers as we passed them, and very seldom found one of our own stature. If the battalion I saw at Dieppe was a fair specimen, the troops of the line were very inferior indeed to our line regiments. The men were not only little — they were small; so that if strength, weight, and impulse were sufficient in such a case, ten men of the calibre of Turner and myself seemed capable of sweeping down a whole company of them. Keeping out of view the influence of other national differences, this inferiority in physical frame will of itself, in part at least, explain the fact that, under tolerably equal circumstances as to numbers and generalship, French have never been able to stand against British troops. It is usually said, indeed, that "a little man's bullet has its billet as sure as a big man's." Firing, however, is but part, and a small part too, of a soldier's work. Besides, from what I have seen, I am satisfied that, taking men overhead, the strong will fire faster, longer, and more true, than those who are weaker. Various incidents have satisfied me that, if allowance be made for exceptional instances of short men possessed of massive muscle, and tall men very

spare in that respect, stature on the whole rules strength, and work, if not skilled. For instance, going one day into the country to collect fresh hemlock-seeds from growing plants where they were abundant, though the work seemed very light indeed, I found that I and five assistants collected very exactly according to our stature, and that nearly twice as much was gathered by the tallest of us as by the shortest.

Paris has been always famous for its spectacles—and many we saw, real as well as theatrical. The one of which I have the liveliest recollection was the mortuary service annually held in the beautiful Abbey of St Denis in commemoration of the death of Louis XVI. The aisles, furnished on both sides with chairs, were completely filled with well-dressed people. A magnificent catafalque occupied the front of the choir. The nave was kept clear for the coming pageant. First came the "Cent Suisses," grand tall veterans from every branch of the service—being that part of the king's body-guard corresponding with our yeomen of the guard—who, as they marched in, opened out and lined each side of the passage up the nave. Then, after a pause of dead silence, appeared a body of high ecclesiastics richly robed, headed (we were told) by the Archbishop of Paris, preceded by youths swinging censers and a priest carrying the Host, and followed by a little knot of members of the Royal family and the Court. At the moment when the procession entered the west door, the soldiers presented arms, dropped the butts of their muskets on

the floor, and knelt down on one knee; but a few Protestants among them were privileged to stand up, with their heads bent over their hands placed over the muzzles of their firelocks. As the procession advanced the congregation followed the example of the soldiers. My companions and I were among the few who kept the erect position. The service which then commenced consisted of a succession of chanting and silent adoration before the cross on the catafalque—on one occasion by the Archbishop in person. The only other Catholic ceremonial I witnessed while in Paris was the Messe de Minuit on Christmas Eve, held in the ancient church of St Roch in the Rue St Honoré, —the most popular of the churches on the occasion of this great Catholic festival. The priesthood and choristers occupied the front of the choir; and the whole spacious nave was crowded with worshippers, to all appearance unfeignedly devout and attentive to the service of alternate prayer and chanting. In strange contrast with this central assemblage, a dense pack of people, male and female, all in holiday dress, moved slowly down one aisle, round the back of the choir, and up the aisle opposite, conversing loudly on very sublunary matters, and some of them — young blackguards in the garb of gentlemen—shouting, imitating, and jeering as they passed the ecclesiastics engaged in the service. Such an incongruity of object and of conduct, so strangely tolerated, enabled one to peep a little into the religious element of the Parisian character. My proper place of worship was the Oratoire in the Rue St Honoré,

near the Palais Royal. The service here was substantially Presbyterian, and very like that of our Scottish Church, except that it lasted some hours continuously, during which each member of the audience came and went at pleasure, waiting, however, for a pause at the close of some act of the service. There seemed to be no appropriation of the pews. The first time I was there I sat down beside a private of the Swiss troops, who shared with me his psalm-book, with the music printed under the verses. So I sang bass to his tenor, following the good example of the congregation, who seemed to join vigorously in the psalmody. By the way, the Swiss troops in French pay, of whom there were several regiments in Paris, were fine, broad-shouldered men compared with the French, very steady on the march through the streets, and altogether, in their scarlet tunics, uncommonly like British soldiers. At the numerous gates and doors of the Palace there was invariably a blue-coated French sentry at one side and a Swiss red-coat at the other—the Frenchman to guard the king, and the Switzer to guard the Frenchman.

While our holidays lasted, we paid frequent visits to the theatres, sometimes to the Odéon in the south side of Paris, but most generally to the Théâtre Français — our object being partly lessons in pronouncing and comprehending conversational French, and partly amusement at small cost. I was fortunate enough to hear the three chief dramatic stars perform — Mademoiselle Mars, Mademoiselle Georges, and Talma—each of them once only. Mars, in her

seventieth year, continued to play with wonderful success her favourite parts of the young French *soubrette* of French comedy. Georges and Talma performed on Sundays only, so that I had to violate Scottish traditions in order to hear them. Georges did not strike me as a dramatic genius, capable of overcoming the unnatural manner and gestures of French tragedians. But Talma was a true genius of the stage, who had thrown aside all the traditional utterances, attitudinising, and gesticulation of the dramatic muse of Paris, and used very much in most respects the lofty impressive methods of John Kemble.

I did not see much of French private society during this my first visit to Paris. That would have been scarcely compatible with my objects as a student. I carried with me three introductions,—to the family of M. Robin, the Paris banker already mentioned; to the Baroness d'Hénin, an Edinburgh lady who became wife of one of Napoleon's generals while he was prisoner of war in Scotland; and to no less a personage than the Comtesse Rumford, the widow first of Lavoisier, and then of Benjamin Thompson, Count Rumford. I spent not a few very pleasant evenings at the town-house and country-house at St Denis of M. Robin. He and his wife knew not one word of English; but they had two clever and accomplished daughters who spoke English excellently, though they had never been out of France, and from whom naturally I learned a great deal during my visits. I was also hospitably entertained several times at the house

of General d'Hénin, who, as well as his lady, was a very kindly, agreeable friend. He was not in active service, because he had been too great a favourite with Napoléon le Grand. As for the widow of Rumford, I called on her, delivered to a lofty elderly lady my credentials from a great friend of hers, Mr Ferguson of Raith, took my leave after a few brief inquiries and words of civility on her part—and heard no more of her. As her drawing-rooms were said to be the fashionable resort of the chief scientific men of Paris, it was thought at home that, if inclined, she might prove useful in obtaining for me an opportunity of studying the higher branches of chemistry with one of the eminent French professors. That means of access having failed me, I was for a time much at a loss how to carry out my purpose. But fortunately, and in good time, my fellow-graduate, Coindet, joining our party for the winter, was able to introduce me to Dr William Edwards, long naturalised as a French subject, one of the most distinguished of French physiologists, and elder brother of the subsequently still more eminent Milne-Edwards, the naturalist. My acquaintance with this learned, able, and amiable man soon became intimate; and it continued so for many years after my return home until his death. From him I received much judicious advice, and he did me the great favour of introducing me as a pupil to M. Robiquet.

The Robin family were stanch Royalists and Bourbonists. It was at their house, I think, that I first was informed that the Duchesse de Berri was about to

add a posthumous child to the house of her murdered husband and to the race of the Bourbons. By-and-by it was known throughout Paris that, for months before, prayers had been put up in the churches for a male child; and that its sex would be satisfactorily settled by the artillery with a salute of twenty-five guns for the birth of a princess, or of fifty for the advent of a prince. In the dark early morning hours of September 29, I was roused from sleep by the report of the first gun. When I had counted twenty-five, there was a pause, probably not unintentional, brief, but long enough to allow me to heave a sigh for the extinction of the only remaining hope for the continuance of the Bourbon family on the French throne. In a few seconds, however, the salute recommenced with accelerated speed, and very soon the completed fifty guns announced in the darkness that an heir to the crown had been born for France. After breakfast I went to the Tuileries to watch the feelings of the citizens. On the way every face I met seemed joyous. Knots of people had assembled under the windows of the apartments occupied by the Duchess-mother, and all seemed cordially to welcome the event. Presently a large window in the first floor was thrown open, and to my astonishment the nurse, in a peasant's costume, exhibited the infant in its swaddling-clothes to the view of a delighted and applauding crowd. Others may have been chewing the cud of mortification at home; but there could be no doubt that the crowds of Parisians who succeeded one another below the Duchess's win-

dows, and were favoured from time to time by re-appearance of the infant, were highly pleased, and sympathised sincerely with the Royal family.

On the occasion of her delivery, the Duchesse de Berri exhibited in a remarkable manner the determination that afterwards characterised her in more public incidents. Her labour was unusually easy and quick, and consequently the child was born before the arrival of the dignitaries of the Court, whose presence was by Royal custom required for authentication of the parentage and sex of the infant. This custom was more than a mere formality in the Duchess's case; for Napoleonists and Republicans had circulated a scandalous tale that her pregnancy was a got-up affair for the purpose of imposing a foundling upon France. The Duchess therefore would not allow the umbilical cord to be cut till one of the Court officials should appear; and on the arrival of the marshal-in-waiting, she said to him: "Approchez, M. le Maréchal! Vous voyez l'enfant et moi, que nous ne sommes qu'un!" About fifteen years later it was accidentally my lot to escort the expatriated Duc de Bordeaux and his tutor Barrante through our University museum and library.

CHAPTER XI.

STUDY IN PARIS.

PROFESSORS AND LECTURERS—L'HERMINIER—FOUQUIER—BOYER—BAD SURGERY—A PREPOSTEROUS OPERATION—DUPUYTREN—HIS GENTLENESS—LECTURE ON TETANUS—BARON LARREY—NAPOLEON AND LARREY—ESQUIROL—HOSPICE DES ENFANS TROUVÉS—BROUSSAIS—VAUQUELIN—DUMAS—GAY-LUSSAC—THÉNARD—ORFILA—THE INSTITUTE—LAPLACE—BERTHOLLET—MARMONT—ARAGO—AMPÈRE—MAGENDIE—EXPERIMENTS ON MAD DOGS—MR DICK ON HYDROPHOBIA.

As in London, so in Paris, I got no lesson in the treatment of diseases. I followed the clinical visit of L'Herminier at the Hospital of La Charité. He was a quiet, comfortable-looking man, who took things easily, and seemed to me flippant in his talk, which sometimes bordered on the profane. I cannot say my observation confirmed what I had heard of the respect paid to the patients by the French hospital physicians, and the general decorum observed at their visits. L'Herminier and his "Élèves Internes" freely interchanged unsuitable observations across their patients at the bedside. One morning, as he was passing the empty bed of a shoemaker who had died of fever a few hours before,

the Élève in charge remarked, with a facetious expression: "Voilà, monsieur, nôtre cordonnier!" "Ah! le bon homme," said the physician, "souvenez-vous? Hier il était plein de joie! Ha! l'avant-coureur de jouissances célestes!" And of course the students laughed at this profane jocularity, uttered aloud in the hearing of several patients not much better than the shoemaker was the day before.

Several wards of the hospital of La Charité, containing in all fifty beds, were set apart for the "Clinique Interne," or course of instruction in clinical medicine, of Professor Fouquier. His wards contained each eight to eleven beds—too many for their cubic space; and they were ill ventilated. In an hour he visited the whole fifty patients; and then he delivered his lecture on the cases to about thirty students. He began with the meteorological report of the previous day, and attempted to trace a connection between the state of his patients and the quality of the late weather. Rheumatism and catarrh had been very frequent, which he ascribed to the customary changeability of the weather. But, for my part, the weather had appeared to me very steady—dry, mild, and altogether pleasant—for fourteen days before. He then took a brief survey of anything notable in his old cases; and finally, he dwelt at great length on two cases recently admitted. The case-book, kept by his "Interne," contained in great detail the biography of the patients from infancy, and gave a most elaborate statement of the existing illness, of symptoms negative as well as positive, and of the condition of

every function, whether disturbed or not. The professor went over these details, and commented on them, although there was nothing at all remarkable or interesting in either of the cases. This style of clinical lecture was a useful lesson of painstaking inquiry to the young student. But if methodically repeated, it must become very dry, and rather barren of instruction.

From the "Rapport du Conseil des Hôpitaux," &c., for 1818, it appears that in the hospital of La Charité in that year, 592 cases died. As every dead body is at the medical officer's command for examination, it is easy to understand that a day seldom passed without at least one pathological inspection. I remember, nevertheless, having once met with a disappointment on three successive mornings. On the third I encountered at the door of the pathological rooms the following apostrophe from the "Gardien": "Encore, monsieur, point d'autopsie! Il y a depuis ces trois jours une épidémie de santé dans l'hôpital!"

The most interesting dissection I saw, but one not at all creditable to the pathology or surgery of Paris, was in a fatal case of operation for popliteal aneurism. I witnessed the operation, which was performed by Professor Boyer, assisted by M. Roux. The femoral artery was reached by the outer edge of the sartorius muscle. The incision, nevertheless, was made over the middle of the muscle, and thus there ensued much tugging and pulling to get at its edge. The artery being laid bare, a broad steel instrument, pointed like a seton-needle, was pushed from the

outside under it; and through the passage thus made an eyed probe, with a double ligature of strong white tape, was passed from the inside. The ligature was then cut in two; and the two parts were forcibly separated from each other to the distance of half an inch. Both were next tied over a longitudinal compress of the same diameter as the artery. Lastly, the incision was stuffed full of charpie; a lofty pile of the same was heaped on over all; and this laborious dressing was secured by an alternating bandage. The result of such clumsy, rough usage it was easy to anticipate. The man seemed to be doing well at first. But he soon fell into an undefinable fever, which the surgeons appeared not to understand, but which Cullen and I strongly suspected to arise from inflammation of the femoral vein; and death ensued in twenty-one days after the operation under symptoms of pure exhaustion, with low delirium. A rough inspection was made. The surgeons were content with finding suppuration of the cavity that had been stuffed with charpie, sloughing of the ligatured artery, and the adjacent femoral vein filled with pus. But Cullen, who knew the "Interne" conducting the examination, persuaded him afterwards to trace the vein upward; when it was found that the entire femoral vein, the external iliac, and the common iliac up to the bifurcation of the inferior vena cava, were blocked with lymph, loose and adhering clots, and collections of pus here and there.

I saw the same surgeons perform only one other operation, which did as little credit to the surgery of

La Charité. A man of thirty-six had been affected for ten years with an extraordinary tendency to exostosis of the bones of the face. The cheek-bones projected so far forward as to be on a level with the bones of the nose; the upper maxillary bones pressed downwards in the mouth so as nearly to reach the tongue, upwards so as to obstruct the lachrymal ducts and the passage from the nostrils to the pharynx, and backwards so as to fill the upper region of the pharynx, and threaten to descend upon the glottis. Lastly, on each side of the lower jaw was another bony tumour, one small and incipient, the other already very large. What was to be done with this formidable complexity of growth in recesses so unassailable? The surgeons resolved to level the obtrusive cheek-bones! Roux was the operator. He made a circular incision round the left tumour, and then a cross section, to expose the bone. An ordinary saw could not be worked round the bony mass. Roux, who had recently returned from a visit to England enamoured with London surgery and English surgical instruments, then tried first Hey's circular saw and then a very pretty chain-saw, but all in vain. In fact the exostosis was harder than ivory, and no saw would bite. The projection was consequently beaten to pieces with a chisel and mallet after the manner of a hewing-mason. The man had been an hour and a half on the operating-table; one cheek-bone had been at last levelled, and Roux was busy polishing the surface with the same weapons, when I left the room, wondering why an engineer should think of painfully

demolishing the outworks, when it was impossible for him afterwards to assail the citadel!

Fortunately for French surgery, I had afterwards an opportunity of seeing it under much more favourable auspices in the hands of Dupuytren at the Hôtel-Dieu. In front of an immense tail of students, we met Baron Dupuytren, a man of five feet eight and of good figure, but very hard-favoured, indeed almost malignant, in countenance. The crowd around him was so great that I found it impossible to get near enough to hear or see his examination of his patients. The French students, moreover, were a very dirty, ill-dressed set to squeeze among. But indeed M. Dupuytren was no better. He wore a dirty white apron, superfluously protecting a dirtier pair of trousers, a greasy threadbare coat, and well-worn carpet-shoes. After his visit we repaired to the operating theatre, where in the first place he gave a brief account in a low voice of the operations he was about to perform. These were lithotomy and removal of the lower lip.

The subject of lithotomy was a fine little boy of only five years. Nothing could surpass the humanity and kindliness of this reputedly rough and ill-natured-looking man. He did not take a single step in the operation without asking and obtaining the child's consent. While he was making his incisions, he was also constantly engaged in patting and coaxing the little fellow, and with such success that he only whined occasionally, but never cried. At the same time every step was accompanied with some words of

explanation to the students—for which purpose he turned his head from side to side, that all might see what he was doing. Of the threefold duty of operating, soothing, and demonstrating, no part seemed to interfere at all with another. The whole operation was over in a very short time. No dressing was applied; and the child was carried out in his nurse's arms, all the while calling out "Adieu, monsieur," —Dupuytren smiling and replying, "Adieu, mon cher petit!"

On occasion of another visit to the Hôtel-Dieu, I was so fortunate as to hear an admirable lecture by Dupuytren on tetanus. It was *à propos* of a case of tetanus occurring during sloughing of the foot caused by a severe bruise; but the substance of the lecture was really a systematic discussion of the nature of this disease. He began by stating that there were some surgical diseases into the essence of which professional observation had not yet penetrated; that the teacher of surgery ought not to evade such topics on account of their obscurity; that they had great attraction for ardent youthful minds exactly by reason of their mysteriousness, and because the investigation of them held out the chance of important discoveries; that the inexperienced are very apt to be led astray in such obscure and tortuous paths through the influence of the uncurbed imagination of youth; that it was the duty of a teacher to warn the student of the risk of error by bringing the fruits of his long experience to bear upon past and present theory, as well as on future inquiry. He then

observed that tetanus was one of the diseases in question—the most important of them—and one of the most inexplicable. He meant to discuss its nature: he could not show, however, what that is; but he could tell what it is not, and especially that it is not what a new Parisian theory would have it to be.

He now proceeded to notice and criticise the exploded doctrines as to the nature of tetanus, and assailed with witty argument and sarcasm the new crotchet, that it is a "rachite," or inflammation of the spinal chord at the origin of the nerves which supply the injured part of the body. Tetanus, said he, is a most violent disease, marked by the most urgent symptoms. Appearances found in the dead body, which may be referred to as explaining its nature, must therefore be in their own nature clear and unmistakable. But what is it that these advocates of inflammation of the spinal chord have discovered? "Une vascularité, tant soit peu, à laquelle la position du cadavre après la mort pourrait facilement donner lieu. Un de ces Rachitistes me pria d'assister à l'autopsie d'un tétanique, en m'assurant que la nature de la maladie devait être mise hors de doute. Le rachis est exposé. 'Hé bien,' dit-il, 'ne voyez-vous pas l'inflammation?' 'Non! je ne la vois pas!' 'C'est parcequ'elle a disparu depuis la mort!' Peu de tems après je l'ai prié de faire l'autopsie d'un de mes malades mort de tétanos. La même question! 'Voyez-vous l'inflammation?' 'Non! je n'en vois pas.' 'Cependant, tout le monde dit que c'est très

evident!' 'Mais tout le monde dit que non.' Et le médecin sortit, aussi convaincu que jamais de l'existence d'inflammation dans tous les cas de tétanos."

Towards the close of his lecture he dwelt shortly on the treatment, lamenting its general inutility, and mentioning that of several very diverse methods there was not one which had not proved apparently successful in a few rare instances, and not one in which the surgeon could put any confidence. Even the removal of the cause of tetanus by no means always arrested the disease—tetanus being one of those consequences of an injury to which the familiar saying, "Sublatâ causâ, tollitur effectus," was very far from being generally applicable. Nevertheless this measure should always be kept in view and carefully considered, for the cause may be trifling and easily removed. With much candour he related a very singular case in which he had himself overlooked that rule: "A child was struck on the fore-arm with a carter's whip. A small swelling arose on the spot, with a little superficial inflammation. Little attention was paid to this circumstance. A poultice merely was applied. Tetanus ensued, and the child died. An inspection took place; and every cavity, canal, and internal organ was examined. But nothing was found—'point d'inflammation du rachis.' At last I suddenly thought of examining the little tumour. There I found, to my great surprise and mortification, the knot of the whip lying in contact with the ulnar nerve. By some unaccountable sport of fortune, the knot had been

separated from the lash; in a manner equally unaccountable, it had been left in the wound; and strangely, too, the skin had healed over it. 'Enfin, messieurs,' concluded he, 'le tétanos est une affection du système nerveux. C'est clair cela. Mais, quant à la nature de cette affection, je ne puis pas vous dire ce que c'est.'"

Dupuytren had the name in Paris of being passionate, harsh, and imperious as a man and a surgeon. The lectures I heard him deliver tended to make him out a man of great candour, humanity, calmness, decision, promptitude, and resource.

Baron Larrey, as distinguished a surgeon as his countryman Dupuytren, was nevertheless a very different personage. I accompanied him in his visit at the Hôpital des Invalides; but I saw no specimen of his surgical art, and did not hear him lecture. He was evidently the idol of his military patients, and they were to him as if his children. His round full features, long sleek hair, calm clear eye, quiet soft voice, and staid deportment, gave him a benevolent and captivating expression. He is said to have had wonderful influence with Napoleon; and great must have been that influence, and well might the soldiery love him, if the following story I was told of him be true. After one of the great German victories it was found that many soldiers of one particular corps had been shot in the left hand, and thereby rendered unfit for military service. Napoleon at once jumped to the conclusion that these were all cases of voluntary mutilation, and vowed vengeance. His threats reached

Larrey's ears, who at once went to him, and found the great man's tiger nature thoroughly roused within him. The men were all cowards! Nothing less should content him, or could satisfy the army, than a general fusilade of the scoundrels! "No, your Majesty!" said Larrey; "do not think so ill of these poor men! They are not cowards: they are brave fellows. Be pleased to recollect that their corps had to execute a movement to the right flank. They marched with sloped arms, and their left exposed to the enemy's line. In such circumstances many men must have been hit on the left hand, but none on the right. Depend on it, these men were wounded in fight."

I had no opportunity of witnessing anything of Larrey's surgery. I only hope it was sounder than his physics. We came upon a veteran in bed, with extremely long moustaches, and on his right jaw a cupping-glass, which was drawing blood very slightly from the scarifications. Larrey made his dresser put over the glass some fibrous matter steeped in spirit, and set it on fire. An English army surgeon with him asked what he expected to attain by so doing.

"That will rarefy the air in the interior, will it not?"

"Yes; but you cannot increase the suction thereby—quite the contrary."

"Comment donc? Pourquoi non? Mais enfin—cela les amuse—n'est-ce pas, camarade?" addressing the patient.

"Oui, monsieur! Mais prenez garde à mes moustaches!"

Among the other hospitals visited, I inspected narrowly one day the Hospital of St Louis, which is set apart entirely for chronic cutaneous diseases.

I also visited, along with Coindet, the Hospice de la Salpêtrière for insane women, was introduced to its famous physician, Esquirol, and accompanied him on his rounds. At this time the treatment of the insane by non-restraint, and in the society of one another, was unknown in Britain, unless it might have been adopted at so early a date in "The Retreat," near York. Moreover, I had never seen a case of insanity in confinement, or otherwise than in the shape of a quiet inoffensive idiot in an Edinburgh street. My astonishment may be conceived, therefore, when, on a door being opened into a great dormitory of eighty beds, nearly as many women rushed upon us from every part of the room, some coaxing, a few threatening, most of them gesticulating, and all chattering as only a female French chatterbox can talk. I confess that at first I was not a little alarmed, especially as I had not sufficient familiarity with French to answer the multifarious appeals incessantly addressed to me. But becoming soon accustomed to the unwonted scene, I was able to admire the patience, wit, good-nature, and success with which Esquirol answered their questions, granted or waived their requests, and extricated himself at last from the mob. Such seemed to be the whole treatment in these chronic cases; at least I did not observe any medicines prescribed. By much the greater number of the inmates were indeed incurables.

Every stranger who goes to Paris visits the Hospice des Enfans Trouvés, or Foundling Hospital, and I followed the rule, but as a general visitor only. The little creatures were all swaddled so closely from top to toe that they could not stir a joint, and their nurses could lift and carry them like a bundle of sticks. In cold weather, as when I was there, they were taken in succession from their cribs and ranged, a dozen and more at a time, on a sloping bench before a roaring fire to be toasted. They do not remain long in hospital, but are soon farmed out in the country. Hence in 1818 the average number in the Hospice was only 130; but 5190 were admitted in that year, and the children in the country of all ages amounted to 17,117. The mortality among them was fearful in the time of "La Republique." Without resorting to musketry or the guillotine, Liberté, Egalité, Fraternité found out a new Massacre of the Innocents. Of 3935 admitted in 1795, 3150 died, or 80 per cent —probably through the same economy by starvation which decimated the lunatics. A reformed system arose under Napoleon; and in 1813, of 5000 admitted only 675 died—exactly 13½ per cent, or one-sixth of the mortality under Republican rule.

During the winter of 1820-21 the attention of most medical circles was divided between the recently published inquiries of Laennec into the pathology of pulmonary and cardiac diseases by means of his invention, the stethoscope, and the novel doctrines and practice of Broussais in regard to diseases at large. After I left Paris, Cullen followed Laennec's hospital

visits assiduously. But the fame of his investigations did not reach us before I had begun work in Robiquet's laboratory; and any one who means to master any branch of chemical analysis in a few months must give up his days entirely to it. Consequently, much to my regret, I never saw Laennec nor his hospital. Broussais I did not greatly care to see, nor his work. He advocated the doctrine that most diseases owed their origin to inflammation somewhere, and were to be treated by blood-letting, especially by means of leeches used in handfuls. Though crowds followed him at his hospital, he had the name of a charlatan with his professional brethren; and he was not far from deserving it, if the account given to me by Coindet of a visit to his hospital be a fair specimen of the man. Coming up to a patient with a pointed tongue, clean all but a foul streak down the centre, —"Ah!" exclaimed he, "la langue pointue! voilà! signe infaillible d'une gastrite! Any appetite?" "Appetite? Yes; I could eat a horse." "Néanmoins c'est gastrite. Any thirst?" "No; no thirst." "Néanmoins, gastrite. Any pain in the stomach?" "No; none at all." "Néanmoins, voilà la langue pointue; c'est gastrite! Cinquante sangsues à l'estomac!" He next stopped at a case of jaundice, when he proceeded to explain that jaundice depended almost always on inflammation of the duodenum, passing up along the bile-ducts, and occasioning in them congestion, thickening, and so obstruction. In approaching another patient, he told Coindet he should show him a case of a new form of

muscular rheumatism which he had discovered, but of which he gave a very vague account; at the patient's bedside, however, he was persuaded by his "Interne," not without great difficulty, that the man had Morbus coxarius. Coming to another case: "Here," said he, "is a man with Colica pictonum, but we do not treat that disease here by the 'traitement de La Charité.' You know what that is?" "No; I do not." "By castor-oil and other purgatives." "There is nothing in that peculiar to the hospital of La Charité. It is followed, I apprehend, everywhere —certainly over all Britain and Switzerland. I have myself seen it practised, and with invariable success, in Geneva and at Edinburgh." "Vraiment, c'est extraordinaire!" Lastly, in relation to a case of scarlatina, he said that the eruption was not in its kind a true measure or test of danger—that the real test was an affection of the bowels; that this was one of his discoveries; that he had no doubt his envious countrymen would claim it for some foreign author or ancient writer, but that he had satisfied himself that no author, ancient or modern, had made mention of it!

Of the professors of the fundamental and ancillary sciences of medicine, the first whose lectures I heard was Richerand. He was a quiet, unexciting, gentlemanly lecturer, who appeared to treat his subject rather too much, like Dr Duncan, senior, on the line of the old waning school of physiology.

Vauquelin, Professor of Chimie Médicale in the School of Medicine, taught pure chemistry—at least

nothing of its medical relations, so far as I heard him. Although the patriarch of French chemists, he lectured with spirit, and taught his science in its newest phase. It was easy, however, to see that the students thought it was time for him "solvere senescentem equum."

The professorship of pharmacy, newly instituted for Dumas, was said to have been founded not so much for the sake of pharmacy itself, as to enable this rising chemist to expound publicly his views regarding organic chemistry, and the composition of organic bodies. I heard only his introductory lectures, which manifested great acuteness and grasp in this afterwards eminent man. But they appeared to me beyond the reach of ordinary students; and certainly what I heard bore little, if any, relation to pharmacy.

Turner and I heard Gay-Lussac lecture on mechanical physics at the Jardin des Plantes. We began with an odd adventure. On arrival, though not at all late, we found a great horse-shoe "auditorium," said to accommodate 1200 sitters, already very nearly full. But within convenient distance, and right in front of the professorial chair, we observed a vacant space on three benches, capable of holding nine or ten persons. Having ascertained that this was no privileged preserve, we joyfully took possession, but under an incomprehensible general titter among the students around us. No sooner did the professor commence than we discovered that he spoke from one focus of an ellipse, while we sat in the other. As soon as the professor began, we heard in the fraction of a second

such an intolerable rattle of speakers in the same voice from both sides and from behind, that we were glad to beat a hasty retreat. Having thus made ourselves the subject of a standard practical joke, we were politely accommodated on the ends of benches by dint of a little civil squeezing. Gay-Lussac was perhaps the most persuasive lecturer I ever heard. His figure was slender and handsome, his countenance comely, his expression winning, his voice gentle but firm and clear, his articulation perfect, his diction terse and choice, his manner most attractive; and his lecture was a superlative specimen of continuous unassailable experimental reasoning.

Widely different was he in most respects from his chemical colleague at the Jardin, and former *collaborateur*, Thénard. Thénard was a tall, powerful man, with the head, front, curls, and eyes of a bull, and a conformable voice, strong, rough, and commanding. His matter was excellent; and he laid it down with a slap from his tongue and a blow with his fist, which made it irresistible. But the incessant vigour, *sans relache sans repose*, made one long for a little of his friend's no less persuasive quiet occasionally.

Orfila, at this period Professor of Medical Jurisprudence, was one of the most popular lecturers in the medical school of Paris. The publication in 1814 of his vast experimental researches on poisons had acquired for him the well-earned reputation of being one of the most forward and successful inquirers of the day. He had also physical advantages which

gave him great power as a speaker. He was a fine-looking man, of elegant manners, and endowed with a magnificent baritone voice, which enabled him to address with ease, in a conversational tone, 1000 students in the great amphitheatre of the École de Médecine. He was, moreover, an accomplished musician, and sang so well that it was currently said he might have made a fortune had he taken to the opera as a profession. But Orfila, preferring the path of scientific inquiry, studied with untiring energy the action of poisons, the details of their several effects, the mode of detecting them in all varying circumstances, and their antidotes and treatment,—till he erected Toxicology on a solid foundation as a science. I did not hear him lecture till his course of instruction commenced in April [1821], a few days before I had to take leave of Paris. But I caught somewhat of his spirit,—as appeared soon in subsequent events.

I had been advised by Dr Edwards to frequent the sittings of the scientific department of the Institute, which accordingly I attended pretty regularly. There I had the opportunity of becoming familiar with the countenances at least of not a few of the great leaders of science whom Napoleon delighted to honour—Laplace, Cuvier, Pinel, Biot, Arago, Marmont, Ampère, Abbé Hany, Berthollet, Magendie, besides Vauquelin, Thénard, Gay-Lussac, &c., already mentioned.

Laplace had a very venerable appearance—a slender figure, small sharp features, a high prominent

wide brow, white locks hanging straight down his temples, and a benevolent droop of the lower lip. I heard him speak only once, and but a few words—with a bitterness which I was far from expecting in a man of so engaging an expression of countenance, and one belonging so eminently to the *animis celestibus*. A discussion arose on a mathematical paper by a young aspirant. At the close the President asked, "Qu'est ce qu'en pense M. de Laplace?" To which the philosopher replied, "Monsieur le President, je n'en pense pas du tout!"

He usually sat and talked with Berthollet the chemist, a tall muscular man, with a hooked nose and chin, a wide smiling mouth, and a high broad forehead—altogether reminding me very much of the Scotch Lord Gray.

Marshal Marmont, member by virtue of his reputation as a mathematician, was always a conspicuous figure in this assemblage. He was a stout, rather tall man, with a countenance formed on the same model as that of Professor Jameson, contemplative in expression, and wholly wanting in that fierceness of look which the modern French officer thought it soldierly to assume in the streets and other public places. His brow was much wrinkled, his cheeks deeply furrowed, his eyes large and prominent, his eyebrows black and immensely bushy—the whole features bearing the impression of much thought, the fatigues of war, and the vicissitudes of climate and of weather.

Arago, "Secrétaire Perpetuel" of the Institute

(subsequently well known in Edinburgh society as a distinguished visitor of the British Association when it met here for the first time in 1834), read some papers of his own, and took a prominent part in the discussion of others. He was a tall muscular man, whose face was an improved edition of that of Sir William Hamilton, smooth and calm when in repose, but wonderfully animated and flexible while he spoke and was stirred up in argument.

Pelletier, with his coadjutor Caventou, had been for a few years astonishing physicians and chemists by the discovery of the active proximate principles of various important poisonous and medicinal plants; and in this year was produced their elaborate and admirable inquiry into the composition of the cinchona barks and the properties of their alkaloids, their acid and their colouring matters.

Hany, the prince in crystallography among the mineralogists of Europe, the solitary clergyman of the assembly, wore the ecclesiastical dress of his order. Pinel, founder of the now universal humane treatment of insanity, had an aged and infirm look. Cuvier was easily singled out by his broad face, hooked nose and chin, and very large head—a head so large that the brain was found after death to weigh sixty-four ounces. But these philosophers sat too far off for me to scan particularly their physiognomies.

More perhaps than with any one else at these meetings, I was charmed with Ampère, because I heard several of his papers, describing his progressive discoveries on the electrical nature of magnetism. He

was a shy, simple-hearted, downward-looking man, and evidently a great favourite with the members. By favour of Dr Edwards, I had the privilege of attending a private demonstration of his chief experiments by Ampère himself, at his own house, to a few of the principal members of the Institute. The philosopher was not an adroit experimentalist before an audience, and would probably have sometimes failed to elicit what he meant to show, but for the assistance of Arago. With the kindly help, however, of the Secrétaire Perpetuel, he made cylinders of coiled iron wire, and other shapes similarly constituted, perform all the wonders of the magnet and magnetic compass, whenever a stream of electricity was sent through them.

I heard Magendie read to the Institute a Supplement to his grand investigations into Absorption by the Veins. He began by recalling the general results of his previous Mémoires, showing that the lacteal vessels are destined to absorb chyle only, and that the function of absorption in general is carried on by the veins. In his new Mémoire he showed how this function is accomplished in the absence of open mouths—viz., that it is effected by capillary attraction through the coats of the veins.

To Magendie I was indebted for my first opportunity of witnessing the operation of a poison. A fighting wild boar of the "Combats des Animaux" having become paralysed in the hind-legs, and consequently no longer fit for military service, was presented to the Museum of the École de Médecine, and it was resolved to despatch him, under the

superintendence of Magendie and Breschet, with strychnia, the newly discovered alkaloid of nux-vomica. One-third of a grain dissolved in spirit was injected into the pleural cavity of the wild boar, which was soon seized with tetanic convulsions, and died in ten minutes. A similar experiment, made on a dog with the sixth of a grain, proved fatal in two minutes.

I was also indebted, though indirectly, to M. Magendie for the much rarer opportunity of attending some experiments on dog-madness. Hydrophobia had been not long before so frequent among the townspeople, that the Prefecture ordered a raid upon the numberless stray dogs in the city, and requested a scientific inquiry regarding the disease. The inquiry was intrusted to Magendie, who committed it to Breschet, by whom it was sub-committed to Cullen. Breschet, afterwards professor of anatomy, and at this period "Chef de Travaux Anatomiques," had made William Cullen his prosector, having previously found young anatomists from a British school to be finer dissectors than his own young anatomical countrymen, and therefore more able to supply him with good dissections for his lectures and demonstrations. So Cullen came to be for some time superintendent of the experiments on mad dogs. These were carried on at the "Combats des Animaux" already mentioned,—a place of amusement outside the Barrière de Clichy, where eighty ferocious dogs of every fierce breed were kept for baiting bears, wild boars, donkeys, monkeys, and

one another, to the great enjoyment of the Parisians, by whom a substitute was thus found for the gladiatorial combats of their Latin ancestors. I never went, or felt any curiosity to go, to any of these brutal spectacles. But I was told that the most successful combatant was a monkey, who contrived to vanquish all canine foes, usually by cutting their carotid arteries with his sharp teeth. On first entering with Cullen the yard where the dogs were kept, chained each to his own kennel, they set up a general concert of frantic barking, amidst which Cullen called my attention to a cry quite different from all the rest, commencing with a bark, but instantly changed to a short sharp howl or painful yell. "That," said Cullen, "is our mad dog; and they say here it is a perfectly diagnostic sign." The method of securing the diseased animals was simple and efficacious. They were kept in a railed pen, with a chain round the neck, rove through a ring in the back of the pen, and thence brought to a hook in front. Thus it was easy to draw an animal close up to the ring, and there to operate on him, or muzzle him for removal. The *gardien*, however, as well as *madame la gardienne*, his wife, went fearlessly, but, as I thought, unnecessarily, among the poor creatures in their dens. The experiments were carried on with the formidable precaution of a burning charcoal choffer and red-hot cauterising irons at hand; but they were never required. The experiments went no further, so far as my acquaintance with them goes, than to prove that the disease, as manifested in the dog, was reproduced

with exactly the same characters in six weeks or two months in another dog by an express bite, by inoculation with a sponge previously well bitten and then applied to a fresh wound, but not by inoculation with the blood; and that the only deviation from the healthy state of the organs, discoverable after death, was slight redness of the pharynx and glottis, fairly attributable to thirst, inability to drink, and frequent crying. The diseased dogs were invariably very quiet, because not teased as when in freedom; and a good deal of teasing was required to make them bite another animal. Healthy dogs were very averse to go near them, and struggled violently against being pushed beside them.

Other results than those now mentioned I never heard of. I suppose the inquiry fell to the ground after Cullen gave it up; at least no account of it was ever published. The failure proved of no great moment; for the whole inquiry into every question regarding Rabies canina, that appears solvable by experiment and observation on animals, was fully investigated in 1828 by Hertwig of Berlin.

The experience thus gained, however, was of use to me afterwards. Not long after my return home, a daughter of my uncle-in-law, Mr Walter G. Cassels, then a banker in Leith, was bitten by a big watch-dog, which had been allowed to get loose from his customary chain. Mr Cassels, aware that I was acquainted with the rabies of dogs, came in great anxiety for advice. The most essential point was to ascertain whether the suspected animal had the dis-

ease, so I went at once to Leith with him for the purpose. On opening a door at the entrance of a long narrow lane, the culprit sprang from his watch-box at the other end, and tugged at his chain with a grand clear bow-wow-wow that enabled me to turn on my heel and assure the anxious parent that the dog was no more mad than himself.

It was at one time my intention to follow out the French inquiry myself. Accordingly, soon after settling at home, I applied to the Edinburgh authorities to obtain for me the first mad dog that could be safely secured alive. But they never could supply me, or at all events never did. In fact, it appears that rabies is rare here among the canine race, though dogs both of good breeds and currish are extremely numerous. Two cases only of hydrophobia in man have occurred in Edinburgh down to the year 1872 during my professional life. I saw the first about 1836,—a poor boy of twelve years of age, who died at a farm not far from Lochend, in all the characteristic tortures of the disease. The second was a policeman who died of it a few years afterwards in the Royal Infirmary. In neither instance was the dog traced; but both had been bitten about six weeks before being taken ill. Rabies therefore must be uncommon in the Edinburgh district.

It is not so, however, if the statement and opinion may be trusted of a very good fellow and apparently high authority, the late Mr William Dick, who founded the Veterinary College in Clyde Street. Dick was a farrier who educated himself. In my student days he

attended along with me Dr Barclay's first course of lectures on comparative anatomy, which consisted in a great measure of a demonstration of the muscles of a highly odoriferous donkey. Dick was never anything else than a rough diamond, clever and experienced, but unlearned; and, like most men of that kind, he had little regard for the experience of any one but himself. On the occurrence of one of the cases just mentioned, the subject was taken up in the Medico-Chirurgical Society, and Dick was invited as a visitor. He forthwith proceeded to enlighten the members, but created great darkness and astonishment, by assuring us that there was no such disease as a Rabies canina communicable to man by a bite; that the malady so called was so common among our dogs, that he saw from two to three hundred cases of it every year; that it was an inflammatory disease of the Schneiderian membrane of the nose, tending to suppuration, and to spread into the glottis and larynx; that he had satisfied himself by frequent trial of its being uncommunicable to another dog by biting, or any other way of inoculation; and that the hydrophobia of man was a nervous or hysterical affection, the result of fear and self-suggestion. The confusion thus arising in the Society's mind was partly cleared up by my positive assurance that I had seen rabies expressly communicated from one dog to another, both by biting and by direct inoculation; and that no such appearances as Dick had described were ever found in these animals. I then asked him if he had read Hertwig's inquiry on this subject, to which he

answered, " No,"—as I presumed he would, the treatise having appeared only in the original German dress. Whereupon I exhorted him to do so, and that he would find a most elaborate investigation had brought out every point directly contrary to what he had been maintaining; and that in particular Hertwig had carefully described the Schneiderian disease, because he had found that it was apt to be mistaken for rabies—by those who had never seen the true disease.

CHAPTER XII.

INCIDENTS AND CHEMICAL STUDY IN PARIS.

THE CATACOMBS—MON DIEU! QUELLE FIGURE!—CHARLES ADAIR'S DUEL—AMICABLE CONTEST WITH HIM—ANTIMONY IN PNEUMONIA—A DIETETIC DECEPTION—A NEW-YEAR'S-DAY DINNER—NAPOLEON AND THE SWISS REGIMENTS—DISTRIBUTION DE VIVRES—CUVIER'S MUSEUM—ROBIQUET'S LABORATORY—MY CHEMICAL WORK—CONSCIENTIOUSNESS REQUIRED IN ORGANIC ANALYSIS—POURQUOI NE PORTEZ-VOUS PAS LE JUPON?

I HAD not long settled down to regular study when the thread was broken, agreeably however, by the arrival, on a week's visit to Paris, of two old High School companions, Robert Mercer and William Pringle, who, almost ignorant of French, threw themselves on my generosity for one day's guidance to the sights of the capital. To them I thus owed a visit to the Catacombs, well known to be the subterranean quarries, outside the southerly Barrière de l'Enfer, from which much of Paris has been built, but which had been converted into a receptacle for the accumulated bones of the city graves and vaults. This immense repository is a series of narrow passages, the walls of which are lined with methodical piles of dry

bones arranged according to kind—skulls here, arm-bones there, thigh-bones elsewhere, &c. In one place a collection had been made of diseased bones, past which, however, our conductor guided us too fast for examination. I noticed as evidence of bad former surgery an anchylosis of the elbow-joint, two of the shoulder, and two of the hip. Quite apart from all the rest, on a special pedestal, was an extraordinary skull, the facial angle of which exceeded a right angle, but which seemed in other respects altogether natural. Our incurious guide had no story about it to tell us. There was no disagreeable odour in the place. The exact method in which the bones were arranged took off the sombre expression natural to such a scene; nor did this multitudinous testimony to the frailty of man seem to exert much sobering influence on the group of visitors who descended along with us. On the contrary, it appeared to be treated as a museum: the ladies were often laughing; and I observed some English girls pluck out teeth from a skull for a memorial.

After a long excursion among the other *memorabilia* of Paris, I took my friends to the "Trois Frères Provençaux," a famous restaurant in the Palais Royal,—enabled them to dine sumptuously, to their surprise, for six francs a-head, including a bottle of champagne,—and then turned them at their request into the adjoining theatre. They confessed afterwards that, having begun dinner very thirsty with their long day's walk, by drinking their full share of a bottle of Bordeaux wine before taking any food, this

and the champagne together had made them temporarily so oblivious that, on coming afterwards to their senses, they were bewildered to find themselves listening to an unintelligible French comedy in the pit of the Théâtre Français.

Another break into my studies was occasioned by a claim on my gallantry. I received in the early morning a letter from my brother John in Edinburgh, recommending Miss —— to my services in her way through Paris to Tours. The introduction happened to be inopportune. I was, in fact, in bed, suffering from the after-effects of laudanum, taken for toothache, which had not been relieved by the rough extraction of a decayed tooth. A dentist on the Quai Voltaire, apparently thriving, no sooner had inspected the tooth, than in one second his tooth-key was applied, and in another second the tooth was in his hand; but the toothache was not cured by this violence. I afterwards saw him on a platform at his door, drawing (sound?) teeth from the passers-by for two sous a tug: I paid him five francs. There was no help for my predicament; but I consoled myself with the belief that I was to make the acquaintance of some fair young countrywoman, and the fresh morning air did me much good on my way to her residence, the Hotel Meurice. There I found my charge was a very different sort of person—a lady *d'un certain age*, with whom I had made a slight and transient acquaintance in the north of Scotland. She was bound for Tours, absolutely ignorant of French.

Miss —— was decidedly not young, very tall—quite of my own stature indeed—square-shouldered, plain in features, but with an unmistakable air of the gentility in which she had been born and bred. At a time when French fashion exacted an extremely low waist, a loose flowing robe, and a big straw bonnet, she wore, as an economical traveller, an ancient, light-blue, close-fitting cloth pelisse, with a waist on a level with the armpits; a gay silk tartan scarf thrown diagonally across the right shoulder in the manner of a sergeant's sash; a round fur cap, and under it a great square black veil over face, shoulders, and back. Such an apparition on the streets of Paris became an object of wonderment to those who passed us. I observed the people we met invariably turn round after passing, to see how she looked from behind; and I overheard one lady mutter to her cavalier, "Mon Dieu ! quelle figure !" I had expected to be her cicerone to the sights of Paris, but I soon found that her almost sole attraction was the shops—of milliners, bonnet-makers, jewellers, and curiosity-dealers. She came out of them, however, unserved and apparently dissatisfied, and with the exclamation, "Too dear ! too dear !" In our walk we arrived at last at the arcades of the Palais Royal, when I warned her to buy nothing there, because the most skilful higgler could not escape without paying twice as much as in a shop outside. The truth then came out, that she had no intention to make purchases, but merely to examine and price the articles. In vain I invented the fiction that such was not the practice in

Paris; and I was reduced to escape from being *particeps criminis* by the further fiction that I was unable to be her interpreter, owing to my ignorance of the French terms of trade. She persevered nevertheless, and it was wonderful to see how she contrived civilly to give the shop-people a great deal of trouble, and yet to make herself understood without one word of French—her last words being invariably, "Too dear! oh, much too dear!"

I spent thus a long uncongenial forenoon, but was relieved from my post by the lady's departure for Tours next morning. She was very kind to me, however, for many years afterwards in Edinburgh, and never forgot to renew her thanks for the pleasant forenoon I had enabled her to spend in Paris.

I know not why I should retain so vividly, and here recall, so trifling an incident. It was my first lesson in shopping with a lady, and it has been my last. I fretted at the time like a chained monkey. But I have often since enjoyed both Miss ——'s proceedings and my own discomfort.

About this time happened an exciting event in our little circle. An Edinburgh fellow-citizen, Charles Adair, had got into a quarrel with a Frenchman at the masked ball of the Opera, and a duel was the consequence. Adair, a well-known character among the young men of Edinburgh, had passed as Writer to the Signet, but changing his mind, began the study of medicine, and in its pursuit went to Paris in his third medical session. Although I had known

him long, he was never much more than a bowing acquaintance, for his pursuits and mine did not bring us together. He was a red-haired, athletic, agile man of six feet one, not bright, good-natured, and decidedly harum-scarum. It was in character for him, therefore, to go to the masked ball of the Opera in the part of a drunken Englishman. But some of his practical jokes were taken *au sérieux*, and next morning he found several cards of exchange in his waistcoat-pocket. One only brought forth fruit. An envoy arrived with a cartel of defiance to the Bois de Boulogne with pistols.

Cullen, chosen by Adair for his second, proved in his novel position, as he did in every other, quite in his element. "What shall be the distance?" said he to his French brother,—"twelve or eight paces?" "Ah, monsieur," replied he, "c'est beaucoup trop près! Vingt, ou plutôt vingt-quatre pas, s'il vous plait! C'est la distance légitime en France." "Eh bien, monsieur! Vous savez que nous sommes ici pour vous plaire. C'est à vous à choisir." Adair, who did not want for courage, demurred to this as child's-play, and said they might as well fire into empty space. But twenty-four paces it was. The Frenchman's bullet was nowhere. Adair's hit the ground immediately in front of his antagonist, and threw the gravel upon him. "Load again," exclaimed Cullen. But the French second interposed, —"Non, monsieur! C'est assez! La querelle n'était pas grande chose. L'honneur de mon ami est satisfaite." "Bien! bien! monsieur. Nous sommes ici

pour vous plaire." Adair was again disposed to demur, and said they were trifling with so serious a matter, and would all be laughed at. But Cullen was master of ceremonies. The combatants bowed to one another, and the party separated.

Not long afterwards I had myself a conflict with Adair, a peaceful conflict of opinion, nevertheless on a very serious question. Our original quartet dinner-party, consisting of Turner, Cullen, Coindet, and myself, had received the accession of Dr Julius Roberts of London, and his friend Dr Satterley from Devonshire—both of whom graduated at Edinburgh the year after me. In a short while Satterley ceased to appear at our restaurant-table: in a few days Roberts found that his friend was desperately ill with pneumonia; and he added the appalling information that he had no other medical advice than that of Charlie Adair in the third year of his medical studies; and that Adair, by repeated free venesection, was apparently bleeding to death a rather fragile subject for the lancet even in those bloodthirsty days. Roberts, unacquainted with Adair, had not had courage to interfere. Evidently, however, interference was imperative, if our companion's life was to be saved; and after some playful discussion as to him who should bell the cat, in view of Adair's recent exploit, it was settled that I, as his acquaintance, and conversant with the treatment of pneumonia in the Edinburgh Infirmary, should face the difficulty, with Coindet for my backer. We had a consultation with Adair the same evening. Our poor friend was in

great straits, so that I very much feared he might die during the night. Besides every other sign of urgent danger, he had that hurried, full, jerking, but most easily extinguishable pulse, which, among other causes, owes its origin to much loss of blood, and which is very apt to be mistaken by the inexperienced, as it was by Adair, for the strong pulse of true reaction. I was not surprised, therefore, that Adair proposed "Iterum seignare, iterum purgare, iterum, &c." But I explained as delicately as possible how matters stood, and the double cause of danger—continuing pneumonia and exhaustion by loss of blood; and I assured him our best chance lay in the antiphlogistic power of tartar-emetic in nauseating doses, and a little wine should the depressing effect become too great. Adair stood manfully to his principles, but was overruled by my determination and experience, and the hearty concurrence of Coindet. As soon as nausea set in, relief was felt by our patient; and when we all met again next morning the improvement was marvellous, so that I confidently promised him recovery. He did recover thoroughly, but died of consumption a few years after settling as a physician in the south of England.

This incident was of service to me in my professorial life, when I had to refute in my lectures on Materia Medica, and also on Clinical Medicine, the ignorant notion of numbers of men, that nothing was known of the use of antimony in pneumonia till Rasori in Italy, and Laennec in France, wrote on it, or in this country till my colleague Bennett trans-

planted it from abroad. Cullen clearly advises the use of nauseating doses of tartar-emetic in pneumonia; and Bennett must have forgotten that when he attended my lectures on Materia Medica as a student in 1832-33, he heard the preceding story in all its details. Rasori was the first to apply the contra-stimulant action of tartar-emetic to the treatment of pneumonia. But he was not the first discoverer of that action, which is categorically described by Dr Marryat of Birmingham in the sixth edition of his 'Art of Healing,' published in 1777, twenty-four years before Rasori wrote.

The subsequent fate of Adair was very sad. He was, as already stated, an agile athlete—insomuch that a year or two after his adventures in Paris, having returned to Edinburgh, he undertook to repeat the extraordinary pedestrian exploit of one Swailes, a Yorkshireman, who a short time previously ran from Edinburgh to Glasgow, a distance of forty-two miles, within six hours. Adepts held that the feat could not be accomplished without covering eighteen miles in the first two hours. This, it was said, Adair had done in training. But a bad sprained ankle put an end—perhaps luckily for him—to his enterprise. Evidently then he must have been a man of rare sterling constitution. Nevertheless he became not long afterwards one of the victims, unhappily far too common at the time in this country, of blood-poisoning from a dissection-wound. He had cut or scratched one of his knuckles at a pathological dissection; an ugly fiery furuncle formed over the

wound; Adair laid it open himself with an abscess-lancet; phlebitis and diffuse cellular inflammation followed; and, after spreading extensively, this proved fatal in a few days. It is remarkable too—in face of his powerful frame and apparently fine constitution—that tubercles were found after death to have begun to form in the lungs.

Our dining-party of six made a rather curious experiment in diet, which the dietetic philosophy of the day could not explain to us. Our restaurant, near the Palais Royal, supplied us, at three francs a-head, with a good dinner, consisting, according to Parisian rule, of soup, three dishes, a pint of "vin ordinaire de Bordeaux," and a capital crusty roll, a foot long, narrow, and shaped like a spindle, tapering to a point at each end. One of our party, however, discovered a restaurant near the École de Médecine, where he was assured that the same sort of dinner was to be had for two francs and a half. So, on economical thoughts intent, we migrated in a body to the "Pays Latin," and took out a fourteen-day subscription to the new table. Before our *abonnement* came to an end, however, we found, on comparing notes, that, though all quite well, we were not so strong as before, and got through our forenoon's work more heavily. We suspected our dietary. There was no apparent defect as to quantity, compared with our previous allowances; and to the taste all was right. But we came to the conclusion that the *matériel* was somehow wanting in nutriment, and unanimously resolved to return to our former quarters.

There certainly we found in a few days that we recovered strength and alertness as before. The only explanation I can now see is, that clever cookery concealed articles deficient either in nitrogenous constituents or in the aromatic juice of meat.

We allowed ourselves the indulgence of only one festive dinner during the winter. On New-Year's Day we agreed that it should be celebrated *more solito*, and repaired to the "Trois Frères Provençaux." Our party of six had a first-rate dinner; drank seventeen bottles of French wine, including champagne, Chambertin, and Lafitte, at a charge of seventeen francs a-head; sang many songs, contrary to tavern rule, but with permission from the waiter, provided we did not "chanter haut"; and at a reasonably late hour walked steadily home together, singing "God save the King" and "Rule Britannia" as we passed the sentries.

I once described this pleasant feast to my laboratory assistants while my late most amiable colleague, Dr George Wilson, was one of them. He wrote the tale, together with other laboratory stories and jokes, to his brother the archæologist, then residing in London. After George's death this letter turned up; and to my astonishment the festival at the Trois Frères appeared, with the characters of a rather desperate orgy, in a proof-sheet of his biography by his sister, who sent it to me for the exercise of my censorship. "Oh, insana gens fœminea!" I advised her to refer to Dr John Brown, who reduced the narrative to more sober proportions—

regretting, however, to "spoil the best part of the book."

Coindet told me the following interesting adventure of the Swiss troops who were in the service of Louis XVIII. when Napoleon, returning from Elba, commenced his brief second reign of The Hundred Days. For many centuries the French monarchs had maintained in their pay a body of Swiss troops, which had of late amounted to 15,000 men. These soldiers were not directly enlisted by the French ruler, but have always been sent embodied from Switzerland by agreement with the Swiss Diet. They were bound by a military oath both to the Diet and to their French temporary master.

On Napoleon's successful invasion of France from Elba, they had a rather nice part to play. Louis XVIII., to whom their oath bound them while king, had left them amidst the French soldiery, who had all joined the usurper; but their fealty to the Diet remained in force. When Napoleon had made secure for a time his unexampled conquest, he ordered a review in the Champ de Mars of all the troops in the vicinity of Paris; and the Swiss regiments were summoned as well as the French. The hour of review arrived—but no Swiss troops. A messenger was sent to their nearest post, to command their immediate appearance. The order was received by Colonel Dafry, the senior commander of the contingent, who returned for answer that his regiment should not join the review. No better success followed a second message of a threatening nature. Napoleon saw his

troops pass before him, but not one Swiss regiment to add to his triumph. He returned to the Tuileries in no mild humour, and ordered Colonel Dafry to appear before him. The Colonel obeyed, and repaired alone into the presence of the triumphant Emperor, seated in the midst of his adoring officers. At the door of the audience-chamber he encountered two officials, who demanded his sword. Dafry half unsheathed it, telling them that "the bravest might try to take it;" and he walked unmolested into the presence of the Emperor. He was immediately asked why he did not obey the order to join the review with his regiment. He was commencing his answer with, "Because, General," when Napoleon, half choked with passion, exclaimed, "Do you know whom you address?" "I do; I address General Bonaparte." The consequence of Colonel Dafry's daring conduct was that the baffled Emperor, fearing to touch him, abused him heartily, and dismissed him.

Not long afterwards, the 15,000 Swiss marched home to their own country undisturbed through several hundred miles of an unfriendly land.

I have not seen, in the numerous histories of The Hundred Days, any allusion to this episode. If it never happened, I can only say, "Se non è vero, è ben trovato." If it did happen, Napoleon was clearly in the wrong; but, as he had himself followed the example of the legitimate autocrats, and kept many thousands of Swiss in his pay, it was not unnatural for him to think, in the intoxication of success, that King Louis's Swiss troops might be swayed by the

example of the others. Colonel Dafry was, of course, clearly in the right,—so clearly, that he was in no danger, if Napoleon took one moment to reflect on the consequences of any vengeful severity.

Before settling down in the first days of November to a long term of steady work with M. Robiquet, I visited some sights of Paris, which may deserve notice.

Our party went to the Champs Élysées on the Fête de St Louis, to witness a "Distribution de Vivres." The favoured persons were the lowest of the town rabble, who were densely packed in front of a few square boxes of the size and height of Punch's Theatre. A stopcock at the bottom supplied wine to those in the crowd who could get at it; and a man at the top threw all round him long, narrow, pointed rolls of bread among the close pack of people, to the imminent danger of their upturned noses. Such was a "Distribution de Vivres"—an institution eminently French, savouring of the nation's love of ostentation. A British distribution is for the proved necessitous only, and is carried on quietly within doors.

We all went also to the Fête de St Cloud, to see the French equivalent of a Scotch fair. We were much amused with the facility with which our volatile neighbours, whatever their rank of life, seemed to be entertained. We could not help remarking also the total absence of drunkenness. During all my stay at Paris, I only met with a single instance of intoxication, and that was naturally at the "Dis-

tribution de Vivres." Coindet and I met a party returning with empty barrels swung from poles, and escorted by a few tipsy pioneers. As the party approached, one of the pioneers, with evident purpose, staggered from a goodly distance violently against us. Coindet received the blow, but so steadily that the assailant was thrown off and pitched upon his nose. His companions at once stopped and turned upon us with furious looks and gesticulations, which made me think a *mêlée* inevitable. But Coindet overwhelmed the men with a perfect torrent of reproaches [1] for insulting peaceful strangers ; and during the brief parley which ensued, the men had time to tell one another that we were "deux Anglais qui tous savent bien boxer." So they picked up their prostrate comrade, and went on their noisy way with their empty wine-barrels. I do not say, however, that my experience proves that the Paris working classes do not drink. The hospital physicians of the capital could

[1] Sir Robert used to tell another anecdote illustrating Coindet's extraordinary "gift of the gab." One evening they went together to a theatre in Paris, but found such a long *queue* that, if they had taken their proper place at the end of it, their chance of getting seats would have been very small. Coindet, perceiving a gap near the head of the *queue* where a space on the pavement was kept clear for traffic, coolly placed his friend and himself in rear of the fragment of the *queue* nearest to the theatre. Instantly there arose loud remonstrances and shouts of indignation, particularly from the two Frenchmen at the head of the *queue* on the further side of the pavement, who naturally felt themselves the most aggrieved. But Coindet, turning round, assailed them with such a torrent of abuse, and overwhelmed the gensdarmes—who came up on hearing the disturbance—with such ingenious explanations, that the real culprits were allowed to retain their ill-gotten places, and the two unfortunate aggrieved Frenchmen were straightway marched off by the gensdarmes and put at the very rear of the *queue !*

tell a different tale. But at any rate intoxication must keep the house in Paris, and boasteth not itself in the highways, as in my own land.

One evening we all went to the Jardin de Tivoli, where all manner of games are to be had, and all sorts of exhibitions to be seen. We rushed down the Montagnes Russes; we tilted at the ring unsuccessfully, mounted on a whirligig hobby-horse, with a lance of the size and shape of a butcher's "steel"; we witnessed the wonderful struggles of "Les deux Ercules" in wrestling; and we wound up our entertainment by gaping with a delighted crowd at a grand midnight finish of a "Feu d'Artifice."

I twice revisited the Jardin des Plantes,—first to inspect the Ménagerie des Bêtes Féroces, that of the Bêtes Paisibles, and Cuvier's great Museum of Comparative Anatomy; and a second time, to take a brief survey of the vast mineralogical and zoological collections of the Museum of Natural History. The mineralogical department was very fine, and remarkably rich in fossils, especially from the great calcareous basin of the Seine. The zoological specimens were numberless, but not in general well got up. Monstrosities seemed much in favour. They occupied a large and popular space, and the calf seemed to furnish the chief supply of them. There can be no doubt of the immense extent and high scientific value of Cuvier's collection of Comparative Anatomy; but the specimens were wanting in the cleanness, perspicuous exhibition, and finish of anatomical specimens in our home museums. They appeared to be intended not so

much for exhibition and instruction, as for mere preservation prior to becoming the subject of anatomical research.

M. Robiquet's establishment was situated in the ancient part of the city, in the Rue de la Monnaie, opposite the south end of the Pont-Neuf. It consisted of his "Pharmacie," or drug-shop, and his scientific "Laboratoire" of three rooms up-stairs, which entered from the shop, and formed two sides of a little quadrangle. All the eminent analysts of Paris were, like him, druggists; but, very different in that respect from druggists in Britain, they occupied a high place among scientific chemists.

Two of the laboratory rooms intercommunicated, and were partitioned from one another by glass only, and these were devoted to experiment. The third was the master-chemist's sanctum, as well as the repository of his balances and other delicate instruments. All the rooms had light only from the interior of the quadrangle. I worked in the principal experiment-room. This was constructed simply and efficiently for ventilation and prompt removal of fumes. It was surrounded on the three unlit sides by a broad shelf of smooth brick-work, on which the experiments were conducted. A shed, the lower edge of which extended into the room beyond the edge of the shelf, sloped above our heads upwards to where the walls met the ceiling; and the angle there formed had a gentle inclination from the two extremities towards one of the corners of the room, where an aperture conveyed

any fumes outside, together with the heated air of the apartment. I have never seen this simple contrivance in Edinburgh, where the laboratory ventilation has always appeared to me very faulty.

Here I worked daily six days in the week for five months, from 11 A.M., and sometimes earlier, till near 5 P.M., when I joined my companions at our restaurant dinner-table.

My *collaborateurs* were sometimes Robiquet himself; always his chief assistant Bussy, who is still [1875] alive as Professor Emeritus of the School of Pharmacy; a very little curly-headed Scoto-Irishman, son of Mr Boyd, chemical manufacturer at Belfast; a volatile lad, Robiquet's nephew, Alphonse Robiquet; and two young men whom I knew only as Germans, working in the little room partitioned off from ours, all in all apparently to one another, and not disposed to court acquaintance with the more genial inmates of the chief apartment. The "Pharmacie" and the "Laboratoire" were independent of each other. No part of the work of the former was done, and none of its officials was ever seen, in the latter; and the laboratory altogether ignored the shop.

As soon as Robiquet saw that I was practically familiar with the manufacture and properties of oxygen, hydrogen, nitrogen, carbonic acid, carbonic oxide, ammonia, &c., he set me to analyse mixtures of them. In this branch of study I was easily successful. One day, however, I happened to pass rather quickly round the trough on which stood a tall, narrow, finely graduated glass jar; when, owing to

the elasticity of the floor, and—worse than that—the firmness of my tread, the jar was upset and smashed on the floor. Robiquet was out of his den, like a spider, in a moment, and for an instant looked much chagrined. He was a man of middle stature, very like a handsome, shapely, English gentleman, with a sharp, lively, amiable expression, and a fair share of French quickness of temper, but under admirable control. His eye took in the nature and cause of the mishap at once. He instantly checked his rising displeasure, and good-naturedly said—"Quel dommage! mais enfin—allons-nous faire un autre!" So he produced a similar jar and a writing-diamond, instructed me how to ascertain the main divisions with a small tube exactly filled with successive equal portions of mercury, and how each space so determined was to be separately subdivided into its own tenths, according to its varying length occasioned by irregularities in the calibre of the jar,—and set me at once to work as a glass-cutter. The task exactly suited my sharp sight and engineering propensities. The result was a jar graduated so much more artistically than the old one, that Robiquet declared himself glad the other had been broken; and we became great friends thereafter.

Taught by what I then experienced, I afterwards in any nice investigations made use only of jars and tubes graduated with my own hands. Every chemist indeed ought to do so, or personally to test his graduated instruments, or to witness the testing of them, if he have not the hands for doing so himself.

The analysis of the gases, which I got through in

a few days, was a lesson preparatory to engaging in the ultimate, or elementary, analysis of organic substances. My own foremost desire was to practise Proximate Organic Analysis. This branch of chemistry had been cultivated for a few years, and only for a very few, with success, in Germany and France, and nowhere with such energy as in Paris. Only a limited number, however, of natural products had hitherto been subjected successfully to investigation. Opium, nux-vomica, and Cocculus indicus had been examined with most satisfactory results; and cinchona-bark had just been added to the list. But the great importance of these few substances; their remarkable action on vital phenomena both in health and in disease; the discovery of the constituents in which these properties reside; the marvellous intensity of action of these constituents, whether as poisons or as remedies; their beautiful crystalline appearance, especially contrasted with the unattractive appearance of the articles which yield them; their most interesting chemical relations; the complex and yet methodical processes for obtaining them; the growing expectation that the discovery of them would revolutionise and simplify pharmacy as well as even therapeutics,—all conspired to raise in me a keen desire to be at least practically acquainted with the methods of investigation. Robiquet, an accomplished analyst in this very field, approved of my aspirations, and gave me for a task the proximate analysis of opium. Much had been done for the proximate analysis of this most

important of all drugs. Morphia, narcotine, and meconic acid were well known; and the medical world of Paris were then experimenting and disputing on the relations which they severally bear in point of action to that of opium itself, both as a poison and a remedy. Of these principles, narcotine and meconic acid, though previously known, were first duly characterised by Robiquet; and, after I left his laboratory, he discovered a second alkaloid in opium, codeïa.

I remember beginning upon seven ounces of opium —no small venture in those days, when opium cost £2, 16s. a pound wholesale, and no good quality of it could be got in Paris except from the London market. I had the gratification of going through in a few weeks the whole analysis as then known, to my instructor's entire satisfaction, without a single casualty or failure.

The resiniform extractive colouring matter, which is obtained at various steps of the analysis, engaged much of my attention. I was struck by observing that, after frequent repetition of the action of boiling rectified spirit, this agent continued to remove a crystalline body, which from some specimens was morphia, and from others apparently narcotine, but which may have been in part one of the numerous alkaloids or neutral principles discovered since in opium in comparatively minute proportions. I could never satisfy myself that I had got a pure resin of opium. This branch of the analysis I was obliged to abandon for want of time,

because I had still before me the study of elementary analysis.

Elementary Organic Analysis had recently acquired great precision, through the improvements introduced by the French chemists. The material to be analysed was subjected to red heat in a glass tube, along with binoxide of copper as an oxidating agent. The oxy-hydro-carbons and oxy-hydro-nitro-carbons were thus converted into water, carbonic acid, and nitrogen; the water was determined by passing the evolved gases through anhydrous chloride of calcium; the carbonic acid was got at by absorption by potash-solution; and the gaseous residuum of that absorption was regarded as nitrogen, allowance being made, however, for atmospheric oxygen and nitrogen derived from the tubes. From these data the several elements could be easily enough calculated.

Analyses of this nature involve very varied and delicate chemical and mechanical operations, which require to be conducted not only with extreme care, but likewise with great conscientiousness. A slight slip may disqualify a long previous investigation, so that strong temptation may arise to make allowance for it. The very work of weighing with a delicate balance and minute weights demands a sharpness of sight, delicacy of touch, and amount of patience which few men naturally possess, but which indeed many may with due perseverance acquire. I happened to be well provided in these respects; consequently I had again the good fortune to obtain trustworthy results, to Robiquet's satisfaction — not, however,

without one mishap from an oversight. I had successfully finished my first combustion, analysed the resulting gases, and had only to weigh the combustion-tube to ascertain its loss of weight. Robiquet had himself weighed it before combustion. But the French procedure, in order to be independent of imperfection in the balance, being to equipoise the tube and weigh the equipoise, he had done the first step only, and had left the equipoise in the balance for me to weigh. Unaware of this, and supposing that the balance merely contained the materials of some previously concluded process, I removed the equipoise unweighed, and so a whole forenoon's work was annihilated. Robiquet, for a keen-tempered man, was a pattern of patience and good-nature. "Ah!" exclaimed he, "qu'est-ce que c'est que vous avez fait? La tare est perdu!—et votre procédé!—mais, enfin! il faut recommencer. Voulez-vous venir demain? Non?"—(to-morrow being Sunday). I was so ashamed of my error that I assented, and my first successful elementary analysis was performed on a Sunday—a performance, however, which was never repeated on that day of the week.

I made many analyses of morphia and narcotine, principally to settle what was then an open question—the proportion of nitrogen which they contained. I was never quite satisfied that the air in the apparatus was duly allowed for. The nitrogen never came out so great in that indirect way as when all atmospheric air was removed from the tubes by filling the interstices in their contents with mercury under the air-

pump vacuum. The nitrogen thus obtained from three grammes of narcotine (46.3 grs.) amounted to 0.0157, or 5.24 per cent; the carbon being 0.1885, or 62.80.

The end of March saw the close of my chemical studies in Paris, and of my most agreeable association with Robiquet and his assistant, Bussy. When I revisited Paris in 1838, both of them received me with great cordiality and lively reminiscences; and I have since resumed acquaintance with Bussy in a pleasing epistolary correspondence. In 1838 he and I recalled a "laboratoire" interlude, which amusingly illustrates the delusion abroad that all Scotsmen are Highlanders. One day in conversation he happened to use the expression, "Vous autres Anglais." I corrected him — "M. Bussy, je ne suis pas Anglais." "Comment? Qu'est-ce que vous êtes?" "Je suis Écossais." "Ah! vous êtes Écossais?"—and he rushed upon me, embraced me, and kissed me on both cheeks, in token of the ancestral ties of amity between our two nations. "Mais, donc, vous êtes montagnard," added he. "Non! je viens du pays-bas d'Écosse." "Comment cela? Il n'y a pas de pays-bas en Écosse!" "Oh! oui, dans plusieurs endroit du midi." "Non! non! Il n'y a que des montagnes en Écosse. Vous êtes montagnard. Pourquoi ne portez-vous pas le jupon?"

CHAPTER XIII.

PROFESSORSHIP OF MEDICAL JURISPRUDENCE.

CHAIR FALLS VACANT—STRANGE CIRCUMSTANCES OF MY CANDIDATURE AND ELECTION—MY COURSE OF LECTURES—SUCCESS OF THE CLASS—CONNECTION WITH MEDICO-LEGAL TRIALS—IMPORTANCE OF STUDYING BOTH SIDES—MEDICAL EVIDENCE IN RAILWAY ACCIDENT TRIALS—A SHIFTY WITNESS—PREVALENT IGNORANCE OF MEDICAL JURISPRUDENCE—FIVE COMMON ERRORS—TOXICOLOGICAL INQUIRIES—ADULTERATION OF DRUGS—TREATISE ON POISONS.

My stay in Paris came to an end near the close of April. I bade adieu to my French friends; and our little circle of Edinburgh graduates broke up, never to meet together again. Roberts and Satterley had left us not long before for England. Cullen remained for further study in Paris. Coindet returned to Geneva, to settle there as a physician. Turner, changing his professional destination, went to Göttingen to study chemistry under Ströhmeyer. I started for London, solitary and dull, and reached my destination by way of Calais and Dover without meeting any further adventure than a heavy gale in crossing the Channel.

On arriving in London, near the end of April, and

inquiring at my bookseller's for home letters, our first salutations were scarcely over when he amazed me by asking, "How my canvass was going on for the Edinburgh chair of Medical Jurisprudence?"

On the 2d of April 1821 died James Gregory, Professor of the Practice of Physic. The Town Council, then patrons of most of the University chairs, appointed Dr Home, Professor of Materia Medica, to be successor to Dr Gregory; Dr Duncan, junior, to the chair of Materia Medica, from being assistant and successor to his father in his chair of the Theory of Physic; and, in Dr Duncan's place, Dr Alison, from the chair of Medical Jurisprudence, of which the Crown possessed the patronage. The first of these successive appointments was severely censured by many,—firstly, because Home had been scarcely at all engaged in practice as a physician beyond the walls of the Infirmary; and secondly, because the electors had passed by Dr John Thomson, Professor of Military Surgery. Little was said of a younger, more experienced, and subsequently more celebrated physician, Dr John Abercrombie. The other translations followed that of Dr Home almost as a matter of course, and met with universal approval.

When I heard, while in Paris, of Gregory's death, I anticipated some such movements in the University as would vacate Alison's chair; and, writing about the news to my brother at home, I used the expression, "He should have died hereafter,"—because I thought myself too young to profit at that time by any University changes. In keeping with that belief,

I now wrote to my brother at Edinburgh to withdraw my name from the competition. But he replied that the steps taken in my behalf had gone too far, and held out too fair a prospect of success, for me to beat a retreat now. My kindest and most useful friends in London, Sir George Warrender of the Admiralty, and Sir Andrew Halliday, physician to the Duke of Clarence, gave me assurance that such was really the case. Thus, without my sanction, even without my knowledge, I was to all appearance on the high-way to an Edinburgh professorship, though not quite twenty-four years old. There ensued ere long, however, an exceeding stiff and protracted contest, which made the issue very doubtful for many months.

The question hung very much on the amount of influence, political and private, which could be brought to bear on the Minister who disposed of Crown patronage in Scotland. One candidate, who truly possessed neither a single qualification for the chair of Medical Jurisprudence nor the prospect of ever acquiring any, and who was so often an unsuccessful candidate afterwards for various medical offices as to be known by the name of the "Solicitor-General," nevertheless had good access to the Tory Minister, though himself a Whig. Another, Dr James Playfair, nephew of Professor Playfair, and looked upon as a man of ability and good promise, had, although also a Whig, good access to the fountain of Tory Scottish patronage through the universal regard entertained for his recently deceased uncle. The other candidates were nobodies, and "nowhere" in

the race. The contest eventually lay, and lay for many months, betwixt Dr Playfair and myself. But we had also a common enemy, in the shape of a suggestion, which cropped up now and then, to abolish the chair of Medical Jurisprudence, as having been tried for fourteen years and proved unsuccessful,—so little was then known in London of the importance of this branch of medicine, which indeed was not taught in any metropolitan medical school, or anywhere else in the British dominions except at Edinburgh.

Playfair, although my fellow-graduate in 1819, was some years senior to me in point of age, having been for a few years, I think, in the Army Medical Service. He had done nothing to distinguish himself since he had been a promising student. Disappointed in the canvass, he settled as a physician in Florence, where he attained great success. I met with him occasionally in Edinburgh after his retirement, when he resided with his brother, the eminent architect of the University. He was then much of an invalid, and seemed a prematurely old man.

The competition went on, with alternate bursts of vigour and fits of languor, from May 1821 until January 1822. At last I ceased to look for success, or to take interest, in a struggle so protracted—began to make preparation for coming out as a Lecturer on Chemistry in the Edinburgh Extra-Academical Medical School, and had actually written six lectures, still existing in a shape much too elaborate for ordinary students, when I was again surprised by

the information, through a rival candidate, that a commission in my favour as Professor of Medical Jurisprudence, sealed and signed on January 3, 1822, had been lying ready for me in the proper Crown Office for six weeks. This odd conclusion came about in the following manner :—

When the canvass had gone on for four months, I got in the end of August, from my Paris master, Robiquet, an important testimonial, plainly meant to be the pure truth. He did not, in more modern fashion in the like circumstances, pronounce me to be a scientific chemist of the first water, but, among other statements, said he had intrusted to me the most delicate and difficult analyses, and had so much reliance in the results that he meant to publish them presently; that he had been sorry to lose me so soon as one of his *collaborateurs;* and that I was "en état d'entreprendre toute espèce de travail chimique." Such a certificate was enough to have settled the competition with a patron acquainted with the requirements for a teacher of Medical Jurisprudence. For I feel sure that no other candidate was even so much of a practical chemist as to have burnt phosphorus in oxygen of his own making, or to have stunk his neighbour with sulphuretted hydrogen gas discharged through the street-door key-hole. This certificate was sent to Sir George Warrender, to make what use he could of it.

Sir George was a junior Lord of the Admiralty at this time, when the First Lord was Lord Melville, the ministerial fountain of Crown patronage in Scotland.

From a cause unknown to me, the two had recently been rather cool towards one another, when an incident occurred which put it in Sir George's power to do his chief a service. A vacancy had taken place in the parliamentary seat for Sir George's county, Haddingtonshire, and the contest ran so close that it was supposed a single vote might decide whether the member should be a hostile Whig or a friendly Tory. In this conjuncture Sir George offered to Lord Melville to post down to Scotland, at an inconvenient time of year, to give his vote—a favour which his lordship did not like to ask, but was very glad to accept. The membership was carried according to his wish, and by a very narrow majority—indeed, if I mistake not, by Sir George's vote. With this service lately rendered, and Robiquet's testimonial to back him, he went to Lord Melville, asked the vacant professorship for me, and of course got it. Having thus far acted with energy, he collapsed into a constitutional aversion to letter-writing, and never communicated to me or my brother the result of his kind exertions, which we learned only six weeks subsequently in the way which has been mentioned.

Soon after induction on February 23, 1822, I settled down to prepare for my professorial duties, which were to begin on the 1st of May. I was urged to put off lecturing till the subsequent summer, but determined to go on at once. With the aid of the best French medico-legal works—a few systematic

treatises, meagre enough, yet creditable to the infancy of English medical jurisprudence—an assortment of straggling cases in the British medical journals—and the reports of criminal proceedings in the 'State Trials' and other law authorities,—I made good progress with my preparations, so that I was able to keep well up to time until the summer session closed with July. My framework was naturally the medico-legal science of France, at that time far ahead of us. But becoming soon practically engaged with questions in the Scottish law courts, I found my lectures not so relative to law proceedings as they ought to be. Moreover, I saw from some translations that a vast mine of medico-legal facts, as yet concealed from my view, lay open to me so soon as I could master the German language, which I set about in a way of my own. In the winter, when I could command continuous time, I spent one entire day in studying a good German grammar — superficially, so as to be able to use it as a grammatical dictionary. Next day, with the help of a dictionary proper, I began to read Schiller's 'Dreysigjähriger Krieg.' I well remember how hard it was to satisfy myself that I had got at the true sense of the first long sentence. But difficulty then seemed to vanish; and any scholar will easily see that this simple elegant sentence may serve as an introductory epitome and exercise on almost all peculiarities of German parts of speech and collocation. In fourteen days I was able to read ten pages of my lesson-book in an hour, and then I proceeded to apply my new acquisition to its object.

Under the new light thus thrown on the subject and object of my professorship, in the course of three years my original lectures were in great part thrown aside for others more appropriate. I was even so ashamed of my first set that I destroyed them. My lectures came at last to consist—besides the introductory *généralités* under each topic, and the necessary scientific discussions under some heads—of a collection of medico-legal cases grouped together, as in a treatise on law, so as to bring out generalised facts and principles. Study in this direction interested me profoundly; and I was rewarded by earnest attention on the part of my hearers, and ultimately by a steady increase in their number. I began with twelve, next year had five, and in the third year one only appearing, I stopped. The fact was, that the young lawyers asked me to give them a winter course; eleven promised, fixing their own hour, and only one came forward. I persevered, however, and when translated to the chair of Materia Medica in my eleventh session, there were ninety students, although my subject was not then imperative on any of them.

My progress in medico-legal knowledge was greatly promoted, and the practical bearing of the lectures much enhanced, by constant practice as a reporter in precognitions and as a witness in courts of law, first in criminal trials, and soon in civil actions also. My earliest appearances were on the side of the prisoner in the Justiciary Court, the young counsel coming to me for the discovery of loopholes in the case for the Crown,—flaws which it was easy enough to find in

the defective medico-legal inquiries of the day. But Solicitor-General Hope, afterwards Lord Justice-Clerk, saw the inconvenience arising from obstructions thus thrown in his way, and by his advice I became unacknowledged standing medical counsel "for his Majesty's interest." My previous training as witness on the prisoner's side, and the wise advice of my elder brother, with whom I continued to keep house, led me always to look at both sides of a question. So far as the medical relations of a case were concerned, I thus became umpire between the prosecutor and the prisoner in the precognition. In point of fact, I thus on several occasions put a stop to further procedure, either by eliciting proof of innocence, or by showing the inconclusiveness of evidence, and the futility of proceeding to trial. I followed the same rule in my inquiries and evidence in civil actions, in which it is even more necessary to be on guard against the one-sidedness of the preliminary investigations. Once during an inquiry of this kind, I was roundly charged by the agent with precognoscing for the opposite party rather than on the side for which I was employed. It would have served no good end to have informed this gentleman that, whatever might be his duty in the case, mine was to find out the truth. But I silenced his scruples by letting him see that, if my services as his witness were to be turned to good account, I must know as much as possible of the other side in order to stand cross-examination; that I could rely on him putting me well up to the facts on his own side, but that for

those on the opposite side I had found I must always depend very much upon myself.

The consequence of this mode of procedure was, that I cannot recall a single instance of my evidence-in-chief having been shaken in cross-examination. In general, indeed, it was rather strengthened by points being brought out which had been overlooked in my primary evidence, and which the cross-examining counsel had better have let alone. Hence the leading members of the Bar ceased to cross-examine me; or when they did, it was to bring out some point in favour of their client, which they knew beforehand that I possessed, and was quite ready to produce if desired.

If there is any part of my professional duties on the discharge of which I look back with more satisfaction than another, it is that of reporter and witness in medico-legal questions. I know that I thus gained the approbation of both Bar and Bench. I make this remark, not out of self-satisfaction, but from earnest desire that all my brethren would profit by my experience, and put an end to the disgrace under which scientific equally with all sorts of professional evidence has for some time lain, of being rather the pleading of a counsel than the testimony of a witness. It cannot be denied that in all professions and sciences men may now be got to defend, on their oath as witnesses, any case in which there is a little show of reasonable doubt. In no profession has this practice become so common, and in degree so deplorable, as in that of civil-engineering—a fact which I

can trace to nothing else but the shameful laxity of parliamentary committees in multitudinous costly railway cases, and heavy bribes in the shape of fees. But in medicine the fault is scarcely less flagrant; and naturally it is worst in similar circumstances—in cases connected with railway accidents. Every railway board of directors has its own surgeons, partly to look after the health of the men, but greatly also to help themselves through their legal troubles arising out of accidents. I am sorry for these brethren of mine, who seem to consider it a matter of duty and necessity that they must always be on the railway side of a question. I am sorry for them, but doubly so for the necessity they create for medical testimony as uncompromising as theirs on the side of the opposite party. I was early engaged in one case of the kind for the party injured. Fortunately my report carried impartiality so much on the face of it, that the directors were induced to compromise the action by a large solatium. But I saw enough then to determine me never to have anything to do with the trade of medical witness in a railway-accident trial.

Much mischief, however, had been done previously to the character of medical testimony in the Scottish law courts by a small section of men, belonging to the Extra-Academical School of Medicine, who could scarcely ever meet a University man on a public occasion without setting up their backs and spitting at him. It was quite enough that a professor was a professional witness in a court of law for one of this brotherhood to appear on the other side; nor did they

ever seem taken aback by the sorry figure they were made to cut on divers occasions. One of them was rather vain of the frequency with which Henry Cockburn, then at the Bar, had him engaged whenever he was counsel. The witness would not have been so proud of his post had he known why he so often filled it. On one occasion the agent in a case in which Cockburn was counsel, remarking that a medical witness would be wanted, asked whether he should see Dr —— on the subject. "No, no!" said Cockburn, "go to Dr ——. He will say anything you like."

The following is a specimen I heard of a cross-examination of this friend of Cockburn. In a trial for poisoning with arsenic—the last occasion on which an attempt was made to dispute the validity of the chemical evidence in arsenical poisoning — Dr —— was employed to make a muddle of the professional testimony; and this was how he set about it. The proof, from symptoms during life and morbid appearances after death—apart from irrefragable chemical proof of the presence of arsenic in the stomach—was unusually strong, perhaps singly conclusive. But Dr —— had no difficulties. "He had great experience of disease. Vast experience in pathological dissections. There was nothing in the symptoms of the deceased during her life which he had not seen again and again arising from natural disease: nothing in the appearances in the dead body which he had not seen twenty times as arising from natural causes." "But, Dr ——," said the Lord Advocate, "the symptoms you have heard detailed, and which you say may

have arisen from natural disease, are also such as arsenic may produce, are they not?" "They may be all produced by natural disease." "So you have already told us. But may they not also be produced by arsenic?" "They may; but natural disease may equally cause them." "You need not repeat that information, Doctor. Give me a simple answer to my simple question: May these symptoms be produced by arsenic? Yea or Nay?" "Yes." "Now, Dr ——, you have also told us that the appearances found after death were such as natural disease may produce. Are they not also such as may be produced by arsenic?" "Natural causes may account for them all," &c. &c., through the same round of fencing, until he was compelled to admit that arsenic might produce them. "Now, Doctor," continued the Lord Advocate, "you have heard the evidence of arsenic having been found in the stomach of the woman. Are you satisfied that arsenic was discovered there?" "My Lord, I am no judge of chemical evidence." "Then, Dr ——, in that case I must tell you that it will be my duty to represent to the jury and judges that arsenic was unequivocally detected; and I ask you this—Suppose arsenic was detected, what in that case do you think was the cause of these symptoms, and of these signs in the dead body?" "Natural disease might cause them all." "Yes! yes! we all know that. But suppose that arsenic was found in the stomach, what then would be your opinion as to their cause?" A pause on the part of the Doctor, now run to earth. "Do you not think, sir, that in that case

arsenic was the cause?" Softly and reluctantly came the inevitable answer, "Yes." "One more question, then, and I have done: In your opinion, did this person die of poisoning with arsenic?" "Yes." "Have you any doubt of it?" "No." "Then" (*sotto voce*, yet audibly enough), "what the devil brought you here?"

Before I had advanced far in my preparatory studies for my first course of lectures on Medical Jurisprudence, I saw that, amidst much ignorance in all departments of it, there was in this country great neglect and frequent error in five cardinal points: 1. The examination of the dead body in medico-legal inquiries was generally conducted with carelessness, incompletely, and without knowledge of the several ways in which the inspection may bear on the legal aspects of a case. 2. Professional men seemed little aware of the occurrence of pseudo-morbid appearances after death imitating the consequences of disease and those of injuries inflicted during life. 3. There was a widespread and deplorable ignorance among surgeons of the numerous medico-legal relations of wounds and other injuries. 4. The errors and obstinacy among obstetrical men in the questions connected with obstetrical practice were something truly remarkable. 5. The principles and practice of toxicology, founded in 1814 by Orfila, had scarcely begun to be appreciated, or even known, in the British Isles in 1822.

1. The form of procedure and points to be attended to in the medico-legal inspection of dead bodies were soon disposed of, thanks to my constant early famil-

iarity with pathological dissections, to which it was an easy matter to adapt whatever was practically useful in the accredited French methods of minute investigation. A formula was drawn up in no long time for the Lord Advocate, who, through the Procurator-Fiscal, directed it to be followed by the various medical inspectors employed by them in criminal cases throughout the Scottish counties. Subsequently this formula was revised and extended, at the request of the Lord Advocate Rutherford, by Dr Traill, Mr Syme, and myself; and the "Instructions," so prepared, continue to be the rule of procedure to the present day,—although, from their established use, few, I believe, are aware who furnished them, or even that the method pursued exists in the shape of formal printed rules.

2. In the course of my pathological studies my attention had been often pointedly turned to the subject of pseudo-morbid appearances. As professor of medico-legal science, I soon saw their practical importance, and also discovered how little the general run of medical practitioners were aware of their existence and nature, and how often in medico-legal inspections they were mistaken for the effects of disease, of injuries, or of poisoning. Nowhere were these mistakes so frequent or so gross as in the Courts of London, as exhibited at coroners' inquests and Old Bailey trials. Even the ordinary purple spots, lines, streaks, and patches of lividity from gravitation of the fluid part of the blood after death, were often taken for marks of blows and ligatures acting on the

skin before death, or for the signs left by disease, or by poison, in the stomach and bowels. Of these the distinction was easily laid down. But there was no information in books worth using on the effects of injuries inflicted immediately after death, while the blood is fluid and the body warm. These I ascertained experimentally. It turned out that the marks left in that case approached much nearer to those from injuries inflicted during life; that they are a source of dangerous fallacy, but that they may be distinguished by sufficient characters in careful hands. My attention was specially drawn to the effects of blows and dislocations immediately after death by the appearances I observed in the dead body of the woman murdered by the notorious body-snatchers Burke and Hare; and afterwards by an incidental circumstance to those caused by burning the skin immediately after death. In both cases I found I could produce very suspicious appearances, whose true nature, nevertheless, could be recognised with certainty by an experienced observer.

During these inquiries I had occasion to correct also the exaggerated notions generally entertained, and even given effect to in books, as to the appearances in the dead body after death by hanging and drowning, in both of which the distinguishing characters are really often very slight, especially in drowning. In hanging with a cord, in the usual way at executions, they are faint, but peculiar, and are not imitated exactly by suspension after death.

3. I was surprised to observe such ignorance as

was displayed by surgeons even of deserved name in regard to the many modes in which their branch of the medical art may often throw light on important questions in criminal trials connected with injuries. The *renunciatio vulnerum* of Continental writers in the seventeenth century seemed to have been almost overlooked by them. Herein my surgical experience in the Royal Infirmary was of great service to me.

That I may not appear censorious without cause, I may mention the two following incidents. When I was studying at St Bartholomew's Hospital, a little tobacco-spinner boy was admitted dying of a punctured wound in the eye. A companion, passing the door of a shed where he was at work, called to him to look out through the key-hole; and on his doing so, thrust in a long, thin, sharp spindle. The little boy died in a few hours. On dissection it was found that the spindle-point had pierced nearly through the pons varolii, and consequently had traversed the skull from forehead to hindhead. The chief surgical witness, in reply to a question by a juryman at the coroner's inquest, stated that great force must have been used to inflict such a wound with such an instrument. The jury in consequence hesitated for some time, and were inclined to bring in a verdict of manslaughter; but they gave the offender, who was only eleven years old, the benefit of youth, and a verdict of accidental death was returned. He was then brought into court to receive an admonition, when there was disclosed the most villanous, hardened countenance I had ever seen in a boy of that age.

The jury unanimously uttered a repulsive "Ah!" Plainly enough their verdict would have been different had they seen him before, instead of after, it was delivered. But the surgeon's opinion was a grave error. After penetrating the soft parts around the eye, the slightest force would be sufficient to send the spindle through the thin orbital plate, and between the brain and base of the skull, to its most posterior region.

The other case was one of omission. A brothel-keeper, a powerful woman and notorious fury, was charged with murdering in her house a law-clerk by stabbing him in the chest with a pointed carving-knife. The man dropped down dead at her feet. The body was examined in the Royal Infirmary by warrant of the Sheriff, in my presence, but as an unconcerned spectator only. A gash was found in the left ventricle of the heart; whereupon the inspection was about to be brought to an end by sewing up the body. But I stepped up to the inspecting surgeons, and suggested that they should fix exactly the direction of the wound. It was then seen that the knife, after severing the cartilage of the second left rib, had penetrated to the left, somewhat inward, and very much downward. This fact proved to be of great consequence. The friends of the murdered man were tipsy at the time, and those of the woman were on other grounds untrustworthy. The woman stated in her declaration that the young man and his companions having become uproarious and rude, she seized the knife in self-defence, and held it before

her with the point sloping forwards and upwards, when he stumbled towards her upon its point. One of his friends, on the other hand, swore he distinctly saw the woman hold the knife daggerwise, raise her hand towards her left ear, and strike towards her own right and downward—in which way exactly would such a wound as was found be produced. The woman was condemned and executed.

It is wonderful how often the credibility of general evidence may be thus crucially tested by careful attention to all the characters of injuries, and especially of wounds by cutting or puncture. Their seat, form, size, edges, direction, the organs traversed, foreign bodies found in or near them, the loss of blood indicated near or at a distance, &c., may pointedly denote the weapon used, the force employed, the manner of striking, the relative position of assailant and assailed, the occupation of the assailant, even the very person guilty, or that suicide is the only explanation. Of all these matters, which interested me greatly, I gave in my lectures a methodical account, illustrated by many suitable cases. My plan was subsequently adopted by Dr Alexander Watson, now, by succession to an estate in Fife, Dr Watson Wemyss, who attended my lectures when a Fellow of the College of Surgeons, and who soon afterwards had some experience in medico-legal inquiries as inspector for the Edinburgh Procurator-Fiscal. His book on Homicide in its medico-legal aspects contains much information; but I do not think it has ever drawn much attention from his professional brethren.

4. I rather avoided obstetrical questions in courts of law, having little acquaintance with midwifery in any of its departments. But having studied them all in the medico-legal works of France and Germany, and perused many reports of cases in the German medico-legal journals, I became aware of the ignorance and rashness of British practitioners in matters of obstetrical jurisprudence. On the only occasion when I was induced to become a witness—because no one else in Edinburgh was acquainted with the foreign literature of the particular subject—I was opposed in opinion to no less an authority than Dr Hamilton, my obstetrical colleague, who was clearly in error, owing to his ignorance of what had been written by Continental, and especially by German, authors, — and also to his exclusive respect for his own opinions and his own experience. It is very different with obstetrics and obstetrical jurisprudence now. Practitioners are more modest, because more accomplished; and, as a natural result, being more enlightened, they are more cautious and more exact as witnesses.

5. But of all branches of medical jurisprudence, none lay in so backward a state in British law courts as its own peculiar subject, toxicology. A case of poisoning in a criminal court was a sure signal for the keen encounter of lawyers' wits, and the direct contradictions of medical witnesses. The prisoner's counsel attacked the case for the prosecution at the fountain-head by assailing the proof of poisoning, not seldom with success, and at any rate bamboozling the

jury into a verdict of "Not proven." It was rarely indeed that plausible means of defence were not to be found in errors, or more generally insufficiency, in the chemical evidence.

It was clear that toxicology was the most promising subject for bringing my chair, and medical jurisprudence itself, into notice. First Dr Duncan and then Dr Alison had failed, during the most populous period of the University Medical School, because they did not think of striking out a path of their own in some single department of their subject. I had life before me, and chose toxicology for its first occupation. I set out by undertaking, with my companion, Coindet, as formerly mentioned, to investigate the theory, detection, and treatment of poisoning with oxalic acid. This sort of poisoning was at the time, in 1823, a common incident—sometimes accidental, not unfrequently suicidal, in one or two instances criminal—in consequence of the acid being much in the hands of servants, for cleaning brasses, and for polishing the yellow tops of top-boots, then very fashionable. I am not aware that anything has been done since that period to add to our knowledge of poisoning with oxalic acid. It is very different with the next topic I undertook, the detection of poisoning with arsenic. I added something to the delicacy of the process for detecting it, especially in complex organic mixtures, and more perhaps to the completeness of the chemical evidence of its presence; and the result was that, when the mode of procedure I recommended was followed by competent hands,

lawyers could no longer shake the proof of the discovery of arsenic, and indeed generally surrendered that part of the case to the prosecutor. But new methods of investigation have been discovered since by Marsh, Orfila, Reinsch, and others, by which facility, certainty, and refinement in detecting arsenic, in the most complex circumstances, have been amazingly increased—and by which, both in this and many other kinds of poisoning, the analyst displays not merely, as before, the excess of poison, in the stomach, bowels, or elsewhere, beyond that which had occasioned death, but likewise the poison diffused throughout the body which had been the actual cause of death. Several interesting cases of opium-poisoning led me also to some improvements in the precarious process followed at the time for detecting opium in mixtures of organic matter; and the constant demonstration before my class of processes for the discovery of other poisons necessarily suggested methods, better in respect of facility or certainty, throughout the whole arrangement of poisons.

I may here mention that, with the example in my memory of Dr Hope's remarkable accuracy in experimental demonstration, I took pains to secure that my own demonstrations should be successful. The chief secret I found to be, never to demonstrate publicly without previously experimenting in private; for thus only are to be learnt the little touches which favour success, and thus only can one make certain that the materials are all such as they ought to be. I remember once failing utterly, in a very simple experiment,

through neglect of this precaution. I used iodide of potassium unsuccessfully for detecting bichloride of mercury. Proceeding to inquire into the cause, I discovered that the iodide consisted of 80 per cent of carbonate of potash, 10 of water, and only 10 of iodide of potassium. To the disgrace of a Glasgow manufacturing company, this atrocious adulteration was knowingly sold over all Britain, and was undoubtedly the cause of the failures often complained of at that time in the use of the salt as a remedy in medical practice. This and other similar instances made me aware of the great extent to which medicinal substances were adulterated. After maturing the subject, I brought it before the Edinburgh College of Physicians, and presented a report, which, after being submitted to a committee, was published as that of the College—not without opposition on the part of the druggists' friends among the Fellows. The College Report, the simultaneous inquiries of Dr Pereira in London, and the efforts of the newly founded Pharmaceutical Society of Great Britain, soon greatly abated the practice of adulterating drugs. The improvement now effected is immense. Some excessive adulterations, formerly constant, are now almost unknown.

While thus studying experimentally the chemistry of poisons, the physiology, pathology, and symptomatology of poisoning were by no means neglected. On the contrary, collecting from all quarters many select cases of the different kinds of poisoning, and adding the best of those with which I had been myself connected in our criminal courts, the whole were method-

ised with all the care and impartiality I could command.

My materials accumulated far beyond what could be used for my lectures. I therefore determined to gratify mine enemy by writing a book; but the 'Treatise on Poisons,' first published in 1829, met with no enemy. In my own opinion, the best part of the book is the summation of my whole toxicological studies in the introductory dissertation on General Poisoning. This is a view of the medico-legal relations of poisoning in the abstract,—a new inquiry, comprising all the various ways in which, in criminal trials, the history of the symptoms during life, the appearances after death, and the chemical investigation, may bear, not merely on the discovery of poison, but likewise on all branches of the general evidence, or, as it is usually called, the moral evidence. I do not think there is any statement in that dissertation which does not stand good to the present day.

CHAPTER XIV.

SCIENTIFIC AND MEDICO-LEGAL MATTERS.

OIL-GAS *VERSUS* COAL-GAS—SIR WALTER SCOTT'S ADVICE ON PATENTS—ACTION OF POISONS ON PLANTS—BURKE AND HARE—ORIGINAL INVESTIGATIONS—RESULT OF THE TRIAL—DR KNOX.

WHILE thus labouring in the strict line of professorial duty, I was induced to undertake, along with Dr Edward Turner, an inquiry into the relative illuminating power of oil-gas and coal-gas.

Public opinion had been long divided between the relative merits of the two varieties of illuminating gas. Oil-gas was allowed to be more easily prepared and purified, less offensive to the nostrils, and less injurious to the binding of books and the colours of furniture. But it was thought to be much more costly. A London oil-gas company, however, after some experience, appeared to be thriving. A statistical inquiry by the political writer Ricardo, founded simply on the relative number of lights supplied by the same quantity of gas from this company and from certain coal-gas companies in the metropolis, made oil-gas possess no less than four times the illumin-

ating power of coal-gas; and Sir Walter Scott, founding on similar data supplied by his private oil-gas works at Abbotsford, arrived at the same result. An oil-gas company, under his chairmanship, was accordingly formed in Edinburgh; extensive works were erected close to Warriston Bridge; street-mains were also laid down throughout the whole New Town; and some houses were even supplied with the new gas—which was universally applauded for the beauty of its light. The company likewise fitted up a powerful condensing apparatus for storing up highly condensed oil-gas in portable vessels, which were supplied to some houses.

While thus proceeding vigorously with their undertaking, the directors bethought them of the insecure evidence they possessed of the relative illuminating power of the two gases, and that there was really no scientific or exact practical information on the subject. They were also stimulated to fill up the blank by a report issued by their rivals, the directors of the pre-existing coal-gas company, containing the statement, deduced from observations with his photometer by my colleague Professor Leslie, one of their shareholders, that oil-gas, volume for volume, supplied only twice the illumination of coal-gas. Turner and I were asked to undertake the inquiry. We found that there was neither rule nor uniform practice followed in constructing gas-burners for either kind of gas. We had therefore to settle in the first instance the most advantageous way of burning each, and consequently the fittest size of hole and length of flame

for simple jet-lights; and in the case of Argand-burners, the size of holes, their distance from one another, the diameter of the central air-hole, and the diameter and height of the chimney. We had to devise a plan for obtaining a perfectly steady flame with gas from a small, experimental, graduated gas-holder, and ourselves to construct a Rumford's photometer, since Leslie's evidently could not measure accurately the illumination from flames differing so much in colour as in our experiments. We then found that the economical principle for settling all these conditions was, that each gas should be burnt as near as possible to the point of thorough combustion without smoke; and that every construction for obtaining greater whiteness or "brilliancy" of flame by a greater supply of air—although it made the light more intense — diminished its amount, measured photometrically, in a greater ratio, by materially lessening the surface of flame under the same supply of gas. Having determined how each gas might be burnt most economically, we ascertained that the relative illuminating power of average coal-gas from the street-mains, and of average oil-gas prepared by a skilful workman at a private gas-work in town was as 1.00 : 2.10, or very little better than Leslie's results.

The source of the error of Ricardo and Sir Walter Scott proved to be simple enough. They compared fine oil-gas of the density 0.92 with the inferior London coal-gas of the density 0.41. But we had to compare it with fine Edinburgh coal-gas of 0.62.

The two coal-gases, in fact, were to one another in illuminating power as 2 : 1.

It was made too plain that the Edinburgh Oil-gas Company had embarked in a ruinous undertaking. Their works-manager, who witnessed our concluding experiments, saw and admitted this lamentable result. Their secretary, however, was not disposed to let his lucrative post be so easily put an end to. He signified to Turner and me, at an interview after our report had been delivered, that the tenor of it was not what the directors had expected, and hinted that a more favourable aspect should be put somehow by us upon their position. But I replied with some warmth, that we understood we had been employed as scientific men to ascertain the truth and faithfully report it; that we had done so, and that we could not alter one word of our report. Nor did we. But the secretary, a knowing solicitor, contrived to keep the Company going for fully a twelvemonth more, during which he and a conceited director made costly and fruitless experiments on preparing a gas equal to oil-gas from resins and other cheap materials. But the inevitable collapse then took place; and during an attempt to obtain an Act for working coal instead of oil, a compromise and coalition were effected with their rivals and opponents in Parliament, the old Coal-gas Company.

During our experiments for determining the best modes of burning the illuminating gases, Turner and I not only discovered the general principle of economy, but likewise the means for exactly applying it. We

therefore had a notion that we might advantageously patent our discovery. We were in doubt, however, whether that, with all its consequences, was not, in its profitable aspect, the property of the Company. By my elder brother's advice we referred the matter in a letter to the chairman, Sir Walter Scott. He replied that the directors were entitled only to an answer to the queries submitted to us, and not to any collateral discovery made in the course of working out the answer. But in very kind terms he added this advice: that at our time of life we had two courses open—either to pursue science for its own sake, or to cultivate it in its practical bearings with a professional pecuniary object; but that if science itself was our object in life, we should have nothing to do with patents. From that time patents ceased to be a temptation, and the unintelligible patent-law other than a sealed book and abomination, both to my comrade and myself. I regret that I never afterwards became so acquainted with Sir Walter as to thank him for the satisfactory results of his sound advice.

Several patents have been since taken out by practical men for burning coal-gas economically as an illuminator. The inventors seem to have been universally ignorant of the foregoing researches, by which their inventions were substantially anticipated. Neither have I ever heard that any of them made profit by their ingenuity.

Another experimental inquiry which greatly interested me—more connected with my province in the University—was undertaken in 1827, also along with

Edward Turner, on the action of poisons on plants. A manufacturing chemist at Bonnington Bridge, between Edinburgh and Newhaven, allowed the acid fumes from his alkali-works to escape over an adjoining market-garden, whose owner raised an action against him for damage done to his vegetables. We were shown the alleged effects, which were extensive and destructive enough. But experiments for express evidence were necessary, and had never been made before. We found that when young laburnums, larches, cress, and mignonettes were confined twenty-four hours under a bell-jar in 2000 cubic inches of air containing a fifth of an inch, or a 10,000th part, of hydrochloric-acid gas, all the exposed leaves were killed and soon dropped off, but that the stems survived and put out fresh leaves in a healthy atmosphere. The appearances on the leaves were very much those of autumnal withering, and exactly such as we were shown in the garden beside the factory. We further found that sulphurous-acid gas caused precisely the same injurious effects even in the minute proportion of a 20,000th part, and that nitric-acid vapour acted similarly but not so energetically. In all cases the action was great, although the dilution was such that no odour or irritation of the nostrils could be observed. Continuing these researches, we subsequently found that sulphuretted-hydrogen, cyanogen, and carbonic-oxide gases, also much diluted, acted as poisons powerfully but quite differently. The oldest leaves began to droop; and although the plants were then at once removed into pure air, the

drooping spread over the whole foliage, and in a short time the whole plant was irrecoverably dead. Thus, as in the case of animals, so with vegetables, there are two classes of poisons—irritants and narcotics—the former acting locally, by injury done directly to the parts exposed; the latter attacking the function of internal organs on which vitality depends. What is this in plants?

No botanical physiologist has attempted to follow out these experiments. Surely the action of poisons upon vegetables ought to prove, as it has done in the case of animals, a powerful instrument of physiological investigation.

The Bonnington case and relative inquiry constituted my first introduction to the study of manufacturing nuisances, which afterwards engaged much of my attention. Very early in this new pursuit I became satisfied that manufacturers of all denominations may, if they choose, greatly abate or altogether prevent the nuisances which they create.

Mention has been already made of the terrible crimes of Burke and Hare, and of an inquiry in connection with their case carried on in 1828 into the effects of violence inflicted on the body soon after death. But the whole subject, as a matter of Edinburgh history, and of some interest in the history of anatomical teaching in this country, deserves more than the passing notice it has previously received from me—the chief party in the relative professional investigations.

Burke and his mistress, with Hare and his wife—the women as decoys, the men as principals—had contrived a plan for supplying the Edinburgh school of anatomy with bodies for dissection by murdering their lodgers. Familiarity with success at last bred carelessness. A visitor descried a dead body beneath Burke's bedstead. The body was conveyed to the dissecting-rooms of Dr Knox very early next morning. But alarm was raised in time, the police traced the body, and it was claimed the same day by legal authority.

Mr Newbigging and I were appointed to conduct the medico-legal inspection of the body. The subject was a woman, about middle age, well nourished and without a trace of disease in any organ. The body presented the signs of death by asphyxia—vague enough in general, and in this instance particularly so, because the method of the murderers left no external local marks. We found, indeed, various immaterial bruises on the limbs—inflicted during life because attended with swelling from extravasated blood, and rather recent because not surrounded by any yellowness. But there were no external marks about the neck or face to indicate how respiration had been obstructed. The neck was loose, the ligaments between two of the vertebræ of the neck were torn asunder, and a little fluid blood was effused beneath the spinal investing sheath and a good deal among the muscles of the neck and back. At this time we knew nothing of the supposed manner of death, and therefore a question arose whether death might not

have been occasioned by the head having been forcibly bent upon the breast so as to rupture the spinal ligaments. Express trial, however, proved that such forcible flexure, practised very soon after death, while the blood is fluid and the blood-vessels retain contractility, produces the same appearances of extravasation as in the body we had examined. We also found that blows inflicted on the surface in the same circumstances produced livid marks without swelling, owing to injection of the true skin with blood, but that natural cadaveric livor is confined to so thin a layer of tissue that the cuticle cannot be peeled off without completely removing all discoloration; and that bruises inflicted during life are attended with swelling, and generally with such distinct extravasation of blood as allows of small clots of blood being detected. We therefore came to the conclusion that the injury to the cervical spine had been caused soon after death while the body was warm; that the bruises on the limbs were occasioned not long before death, and might have been caused by blows or kicks, but quite as probably by falls or by stumbling against hard objects; that there were no indications of death from any specific natural disease; that every particular appearance we observed was consistent with the idea of death by suffocation; that if death by violence were to be assumed, smothering and not strangling was the manner of it; but that there was no positive proof of death in that way, or indeed in what way death had been caused.

This evidence was of course insufficient to bear out

a charge of murder, though such as to raise the strongest suspicion. The law authorities therefore encouraged a tendency shown by the Hares to save themselves by confession, and eventually both of them became "King's evidence" against their fellow-criminals. The plan of this fraternity was to make acquaintance with poor people supposed to be friendless, either residents in Edinburgh or who had recently arrived there, and, in the course of a little kind entertainment, to fill them very drunk. Then one of the men, in a friendly embrace, or by stumbling against the victim, threw him down on his back, pressed him down with the whole weight of the body, closed the mouth by pressing up the chin with one hand, while the other covered the whole mouth and nostrils firmly. The other man at the same time prevented all struggling with the limbs. Respiration was thus entirely stopped. In a very few minutes death was complete, without any trace of external violence being left. The legs and thighs being then doubled up, and the head bent forcibly down, the body could be packed in a small box, which was conveyed in the dark to the anatomical rooms of Dr Knox.

There was reason to suppose that this atrocious trade had been carried on during the whole winter of 1827-28. Burke, indeed, was said to have admitted after conviction, that sixteen victims had been murdered by his copartnery. But villains of his rare stamp are apt to indulge in the strange vainglory of exaggerating their actual wickedness. The Crown lawyers, however, were prepared to

prove, as their indictment showed, three specific murders.

The opinions which Mr Newbigging and I formed from the inspection alone after death, proved to correspond in all respects with the actual cause and manner of death, as described by the wretches who betrayed their companions. Burke was condemned. But his mistress got off with a verdict of "Not proven," on the ground that she was *in loco conjugis*, subject to Burke's influence and commands, and because nothing else was proved against her than that she knew what was doing, but fled into the lobby to escape seeing it. The three partners in these shocking atrocities were spirited away with great care and secrecy by the authorities. For there was no doubt that, had the populace caught any of them unprotected, they would have been victimised without mercy. Hare's first stage was a night-journey to Dumfries inside the mail-coach, where the late Sheriff Sandford discovered to his horror, as day broke, who had been his only travelling companion, and angrily exchanged his seat to an outside place for the rest of the journey in a cold winter morning.

Another person shared largely in the popular indignation, and thereby incurred no little risk. All ranks were persuaded that there had been blamable blindness and laxity on the part of Dr Knox in his transactions with these villains; and as for the mobocracy of the town, they looked upon him as "art and part" with the active criminals, as he was their patron and encourager. His effigy, therefore, was hanged by a

great crowd from a tree in front of his house in Arniston Place; the house itself was attacked, and every window smashed; and it would have been sacked but for the timely arrival of the police. His life, too, was openly threatened; so that for some weeks he prudently stirred out only in the dark, and sought the byways in passing from place to place. But he would have been a formidable adversary to assail; for, though short, he was strong, agile, and resolute, and carried pistols, which he would assuredly have used with effect in his defence.

A committee of men of note in the city, with the Marquis of Queensberry at their head, undertook an inquiry into Knox's alleged criminality; but, after many sittings, they came to no clear conclusion. My own opinion at the time was, that Dr Knox, then the most popular lecturer on anatomy in Edinburgh—with a class of upwards of 300 students, whom he must have found it very difficult to supply with sufficient materials for dissection—had rather wilfully shut his eyes to incidents which ought to have excited the grave suspicions of a man of his intelligence. In a conversation I had with him before the information obtained from Hare and his wife had been communicated to me, I observed that the body taken by the police from his rooms must have been delivered there while warm and flexible, and consequently never had been buried. He made very light of this suggestion, and told me that he had ten or eleven bodies brought the previous winter to his rooms in as recent a state; and that they were got by his providers watching the

low lodging-houses in the Cowgate, Grassmarket, and West Port, and, when a death occurred, purchasing the body from the tenant before any one could claim it for interment. But Dr Knox could scarcely have been so little aware of the habits of the low populace who frequent these dens, as not to know that a death in one of them brought a constant succession of visitors to look at the corpse, and keep up a series of orgies till they saw it carried off for burial; and consequently, that no such arrangement with the lodging-house-keeper as he described was practicable. In fact, Professor Syme told me, that, when he taught anatomy a short time before, he had tried to organise such a system of supply, but that he found it impossible, for the reason now given. Knox, a man of undoubted talent, but notoriously deficient in principle and in heart, was exactly the person to blind himself against suspicion, and fall into blamable carelessness. But it was absurd to charge him with anything worse.

He never recovered in Edinburgh society from the stigma which thus attached to him. His talent as a lecturer kept his class-room crowded as usual, but only for a few years. The numbers fell off at last; he left Edinburgh; and after various vicissitudes, and successive descents, he sank, before his death in London, to a state not much above destitution. One of his last occupations was that of lecturer, demonstrator, or showman, to a travelling party of Ojibbeway Indians.

CHAPTER XV.

GEORGE IV.

THE KING VISITS EDINBURGH—DRESS GENERALLY ADOPTED—THE KING AT THE THEATRE—A PIT SQUEEZE—ITS EFFECTS.

HAVING now traced my medico-legal life much in advance, and passing by other events not unworthy of notice, I must return to the first year of my professorship.

In the autumn of that year, 1822, occurred the memorable visit of King George IV. to Scotland. Nowadays, though the citizens of Edinburgh are well pleased to receive a royal visit, her Majesty's prolonged annual residence in the north takes away the excitement of novelty; and consequently, in spite of her eminent popularity, and the hearty enthusiasm with which she is invariably received when she appears in public, my fellow-townsmen have never shown such continuous, untiring ecstasy as when they welcomed to Scottish soil the first monarch who had deigned to look upon it since the days of the Stuarts. I had a full share of the various sights and in many of the scenes of the time. But it would

be tedious to say all I might say of my experience, though I still remember clearly very many of the incidents.

One thing may be truly said of the fourth George —that, whatever his faults, he was every inch a king in his public appearances. He was tall, handsomely made, or else admirably got up, and in his manner most gracious, and even kindly. I had a good opportunity of judging when he received our Senatus Academicus in Holyrood Palace. He had a fine sonorous voice, and delivered his answer to our address with the perfect grace and finish of a John Kemble. At the close, when our pursy and not too youthful Principal Baird knelt and kissed hands in name of the University, the King, with the benevolence and mien of a veritable *pater patriæ*, helped him to rise up again.

Though the late Sir Patrick Walker of Drumsheugh was Heritable Chief-Usher at that time, Sir Walter Scott was by general consent accepted as the real master of ceremonies, so far as concerned the public. Whether he was practically costumier for the purpose, I do not know, but he it was who got the credit of giving great prominence to the Celtic dress for various bodies of men whose uniform had not been previously settled otherwise; and thus he gave origin, or at least fixity, to the common delusion of Englishmen, as well as foreigners, that Scotland is a nation of Celtic Highlanders. The magistracy caused it to be understood that, for the credit of the country and capital, all spectators of

the royal progress should turn out clad in their "Sunday's best"; and so heartily was the recommendation accepted, that the squalid seemed nowhere represented, and his Majesty expressed his astonishment that an Edinburgh mob was a crowd of gentlemen. Either the magistracy or Sir Walter also contrived to instil into the public mind the desirableness of all gentlemen appearing in the streets in blue swallow-tail coats with large gilt buttons, having the word "WELCOME" in big letters across them. The fashion took, down to the most humble class of gentility, and much lower. Like the Celtic uniform of our troops, it had an imposing appearance in a body of men, but in the case of an individual was somewhat ridiculous.

The King went one evening to the theatre, and witnessed the excellent dramatic version of "Rob Roy," performed by the original company, who rendered it for many years the most popular drama of that period. A row being expected, from certain indications in a great crowd which had besieged the pit-door from an early hour, I went late to watch the proceedings. A mass of the male sex alone, at least four times greater than the pit could hold, and chiefly composed of strangers from the country, who were unaware of the usual rule on great occasions, which was to stand quiet till the door should open, had been crushing, surging, and swaying for nearly five hours; and every now and then a man was rolled out from the front over the heads of the mass, or gradually ejected from the edge, seething, dishevelled, exhausted,

and fainting. When at last the door opened, the screams in front were quite alarming. But now no one could get out, while, at the same time, the progress made was extremely slow, because those in the van had great difficulty in disentangling legs, arms, and apparel from the dense pack. The difficulty was increased by a heavy squad of people squeezing from that part of the outside which was directly opposite the door. But it was well known to adepts like myself that no one ever got forward from that direction, or otherwise than by creeping onward close to the wall. I had gone to the scene without the slightest intention of entering. But at last, being an experienced pit-man in the palmy days of John Kemble and other London stars, and having the advantage of being tall and strong, though slender, I exclaimed, after the door had been fully ten minutes open, "I bet I'll get in still!" and rushed to the extreme end of the crowd close to the wall. In ten minutes more I had gone successfully through the conflict, and was seated in the middle of the fifth row from the back of the pit. One man after another, on arriving within, had tumbled down in a faint, and had been quickly hoisted out again through the lower tier of boxes. A strong young countryman, staggering along the seat behind me, muttered, "It's an awfu' thing to fent noo after fechting in the crood for five hoors!" and at once fell down in a state of collapse. He was about to be sent after his predecessors, but I objected, made a temporary clearance for him, laid him down horizontally on the bench, and by tweaking his nose,

rapping his forehead with my nails, and talking encouragement to him—with the aid of a big pear, which the hand of some unseen philanthropist thrust on his mouth, and upon which the mouth opened and shut appreciatively—I succeeded in bringing him completely round. During the rest of the evening the grateful swain never tired of pouring out his thanks at every interval of the performances. It was always, "Eh, sir, if it hadna been for you," &c., &c. The King paid steady attention to the stage, and obviously understood and enjoyed the jokes of Bailie Nicol Jarvie, and the hybrid tongue of "The Dougal creature." He must have been much gratified, too, with his reception by the audience. Even the gods, awed apparently by the presence of one of the *Dii majores* visiting the earth below, abstained from their customary vociferations and other uncouth noises, and showed how easily they could behave as gentlemen.

CHAPTER XVI.

TOWN COUNCIL AND SENATUS.

POWER OF THE TOWN COUNCIL COMPLETE AT THE FIRST — LORD PROVOST DRUMMOND INITIATES A CENTURY OF FREEDOM—TOWN COUNCIL RESUMES AUTHORITY—THEIR "VISITATION" IN 1825—REPEATED CONTESTS—PROSTRATION OF THE SENATUS—REACTION AND PUBLIC MEETING — BILL FOR IMPROVEMENT OF THE UNIVERSITIES OF SCOTLAND—CONSEQUENT GREAT ADVANCE OF THE UNIVERSITY OF EDINBURGH.

Not long after I joined the University, there happened concurrently, and indeed connectedly, two events which, in their shifting phases, have greatly ruled its destiny ever since.

The Senatus Academicus came to the resolution to alter greatly and improve the curriculum of study for medical graduation; whence arose, at many consecutive meetings, not only much conflict of opinion, but likewise no little wrangling and bitter words—and even, alas! an action at law for personalities. At the same time, and inextricably mixed up with these measures of reform, there commenced, between the Senatus Academicus and the Town Council of the city, a series of feuds which only came to an

end thirty-six years afterwards, when "The Universities (Scotland) Act" of 1858 put an end to municipal jurisdiction over us. In all these feuds, young as I was, and in a conclave of reverend seniors, I bore a prominent part. Man, whatever other definition may be given of him, is certainly a pugnacious animal.

When James VI. established his College in Edinburgh, he did not so much found it as grant the Town Council a charter to found it for him. Naturally enough, for men fond of power, they did not create the proper constituent bodies for self-government of a university, or concede "such powers, privileges, and immunities as any other college in his Majesty's realm brooks and enjoys," according to the terms of the deed of foundation, but they reserved all such privileges for themselves and their successors. The professors were, in fact, mere schoolmasters, removable at the Town Council's pleasure, and stripped of all independent academical jurisdiction. There was in the early days a struggle for freedom, but in vain during such tyrannical times. The Scottish burghs fought manfully for their own emancipation from tyrannical sway; but they were themselves no less tyrants where they were masters. The Town Council knocked down and raised up professors, according to the political rage or other ruling passion of the day. They appointed all the minor officials of the College, on whom the comfort, and in some measure the usefulness, of the professors depend. They even "took fatherly charge of the College bell." They regulated the minutest arrangements, and the discipline of the

school, as well as the rules for all manner of graduation. On the occasion probably of some demur or spontaneous exercise of authority on the part of "the Faculty"—as the Senatus was then called—they summarily settled the whole question of respective jurisdiction by a sweeping Act, that "all College business was to be transacted in the Council, and the professors sent for when wanted (*pro re natâ*)." Whether on the same or another occasion, they made a "raid" on the Senatus, and carried off the minutes of that body; and these, recording the first century of the life of the College, have never been recovered.

Matters went on in this state of misrule for nearly 150 years, during which there was given out by the University no tangible evidence of prosperity, nor did it make any mark on the literature or science of the time. But, from the beginning of the second quarter of last century, the accession of men of great ability and no little public influence to the ranks of the Senatus, together with the enlightened administration of Lord Provost Drummond — a far-seeing man, of much influence in all city affairs—gradually developed a new order of things. The Senatus, left to regulate itself, exercised ere long, and continued to exercise for about a century, uncontrolled jurisdiction in all matters relative to education and graduation. They even ventured to encroach on the patronage of the Town Council by subjecting candidates for professorships to examination, and appointed teachers in the University who had not the rank and privileges of professors. This change of rule, permissive only in its

foundation, was allowed to continue for almost a century. Consequently both parties seem to have lost sight of the singular primary constitution of the University.

But after the beginning of the present century a certain member of the Council, burrowing among its ancient forgotten records, discovered the unpleasant truth that the municipality was really all but omnipotent in University management. General rumour named as the discoverer a President of the College of Surgeons, who had a seat in the Council as Deacon of the craft of Surgeon-Barbers, and who was understood to have been impelled by cordial hatred of Dr Hope and Dr Monro, the Professors of Chemistry and Anatomy. I had no personal knowledge on that head, but there was no doubt that he and his successors in the chair of the Royal College backed with all their might the persecution to which the Senatus Academicus were subjected at that time and for many years afterwards.

The breach between the two bodies began in this way. Dr James Hamilton, whose lectures on Midwifery had become so popular that there were few medical students who did not attend them, applied in 1815 to the Medical Faculty to have the study of his subject made imperative on candidates for the degree of Doctor of Medicine. The Faculty declined his request, being guided by its three senior members, who had long been on no friendly footing with the applicant. Therefore, in 1824, he applied to the Council to exercise their authority by passing an Act compelling the Senatus to add his class to the curriculum for graduation. By this procedure he played into

the hand of the Town Council, whose object was to find a ground for raising an action of declarator of right to govern the University as of old. But it was a great error on Hamilton's part; because several professors, hostile to him in 1815, had in the interval been succeeded by others, who, like myself, were in his favour, so that his case would positively have been carried, had it been renewed in the Senatus.

Meanwhile the Senatus, in the summer of 1824, had taken up the general question of medical study at large in the University, and contemplated much more extensive changes in the medical curriculum. After long and keen discussion, it was finally resolved in 1825—1. To extend the time of study from three to four years; 2. To require one year to be passed in medical study at the University of Edinburgh; 3. To allow another to be counted by attendance on the practice of any large hospital and on Practical Anatomy; 4. To add Midwifery to the seven subjects already required for the curriculum; 5. To require also attendance on any two of the five following subjects—Practical Anatomy, Clinical Surgery, Medical Jurisprudence, Natural History, and Military Surgery; 6. To enforce the new rules, according to precedent, on those students only who should commence their medical curriculum after their promulgation.

Dr Hamilton's object was thus attained, but not that of the Town Council. They thereupon demanded that attendance on Midwifery, and that alone of all the new rules, should be enforced at once on every future graduate. The Senatus refused this outrageous

proposal. The Council then paid us a "visitation" of the whole body in their robes, and with their sword and mace, in October 1825; were received by us in our gowns, marshalled in a line on the other side of a long table; ordered us to obey their mandate; were formally disobeyed; and immediately proceeded to enforce their order by an action in the Court of Session. The judges thought themselves compelled to be guided by the most grinding interpretation that could be put upon the ambiguous terms of a musty old parchment, and by the result of the long bygone struggles of an infant University with the tyranny of its masters, rather than by the practical experience of one hundred recent years of peace and prosperity under self-government. They found the Town Council to be the governing body of the University. It was added, to be sure, that this decision did not make everything they might do legal. If they attempted an illegality, the Court of Session was open to us. Open indeed! at the cost of another thousand pounds out of our private pockets!

When the lawsuit commenced, the Senatus applied in 1826 to Government, during the Premiership of Lord Liverpool, and when Sir Robert Peel was Home Secretary, for a Royal Commission of inquiry into the University constitution and its working, which was granted.

After a protracted investigation by a mixed Commission of both sides in State politics—Lord Rosebery being chairman—their report in 1831 recommended that the government of the University should be transferred from the municipality of the city to the

Senatus Academicus, and to a superior court of review, consisting of seven expressly appointed members. But they left the patronage of the University chairs undisturbed, and consequently fifteen of twenty-six professorships were to remain entirely in the hands of the Town Council, whom they even complimented for their exercise of this part of their functions. The Commissioners fell into several grievous errors besides this one—all injurious to University interests, and all arising from carelessness amidst apparent caution. For example, instead of asking for a return of the actual emoluments of the several professors, they applied the multiplication-table to the fees and number of students of the several classes, and so brought out a handsome income, generally one-third, and in one case one-half, greater than the reality. This exaggeration of professorial emoluments naturally gave great encouragement and facility afterwards to the Town Council in carrying through various changes which involved serious loss to several professors. Again, the Commissioners were so rash as to charge the Medical Faculty with increasing laxity in their examination of candidates for the doctorate, merely because the doctors of medicine had multiplied in a greater ratio than the medical students. Had they made the requisite inquiry, they would have learned, in the first place, that the examinations had become notoriously more stringent, and were held to be so by the students themselves; and secondly, that the explantion of the high ratio of graduates to students was a very simple matter. During the

long French war, and till after the peace in 1815, the exigencies of the naval and military services induced many young men to leave the School with the qualification of surgeon, instead of making out the longer period of study required for graduation. The proportion of graduates was thus necessarily reduced. But gradually after the peace, numbers of these men returned, became students anew, but for a single year only, and then took the degree, thus swelling the list of graduates much beyond the previous proportion. The inculpated Faculty addressed an indignant remonstrance to the chairman and other members of the Commission. All acknowledged the error; but no public authoritative correction could be made, because the Commission had ceased to exist. The false censure consequently long furnished an apt handle to our envious English brethren, who took every occasion to raise an outcry against the alleged laxity of examination in the Universities of Scotland. The injured professors took advantage of the permission of the individual commissioners to make public their acknowledgment of error. But I have seen too many instances like this of an error in a public document, or original, scientific, or literary statement, where the error is seen and believed by a hundred people for one who sees its correction. The error lives on—the correction dies out. Another mistake was a recommendation that every professor in the Medical Faculty should be required to give, in addition to his lectures, a second hour daily to examining his students. A system of examination so laborious

and irksome is very sorry work for the minds of such as ought always to be the occupants of medical chairs in a great University. To require the sacrifice of two hours daily from professors who are engaged in medical and surgical practice, would be equivalent to compelling them to resign office. Moreover, where were to be found the additional daily hours for the new work, seeing that, even as matters had long stood in the medical department, it had been found very difficult to arrange the forenoon hours for the lectures alone of the several professors, so that they should not interfere with one another? The Commissioners' examination scheme was, in short, utterly impracticable. I may add too, from actual experience, that, if practicable, it would have been found useless. But the greatest mistake of the Commissioners was their commendation and continuance of the municipal exercise of patronage,—a strange concession in face of the fact that, but a few years before, the Town Council had rejected Babbage for the chair of Mathematics, and Abercrombie for that of the Practice of Physic. Either the Commissioners, for political reasons, were averse to offend the then Tory Town Council out and out on the University question; or perhaps they looked back to the appointments of the preceding century, when the men who were chosen stood out so prominent for greatness of intellect that blundering or partial favour was an impossibility.

No good ever came to the University from the report of the Royal Commission of 1831. The Tory Ministry who granted it were displaced in that year

by a Whig Government, whose policy it was to flatter and favour the burghs and town councils. They had not courage enough to offend the municipality of Edinburgh. Thus it was that the Commission failed to bring about any legislative measure. But often afterwards the statements, criticisms, and speculations in the report furnished the opponents and ill-wishers of the University with support for their crude ideas of improvement for the benefit of the public—or themselves.

An attempt was made by the Senatus to suspend the lawsuit with the Town Council during the proceedings of the Royal Commission, but unsuccessfully. The Council were placed by the decision of the judges in possession of summary authority over the University in all respects. They claimed and exercised the right of appointing the University secretary, librarian, anatomical curator, janitor, and porter. They even made a movement towards taking into their hands the appointment of the class-doorkeepers, whose wages, however, the professors were to be allowed the privilege of paying. They provided examination-fees for additional members of the Medical Faculty, by taking them from the previously existing members; so that in 1833 this part of the income of the old chairs was reduced to less than one-half. They withdrew certain small class-fees received for museum and experimental expenses, without providing any compensation; and thus they threw the whole of a new charge on the professors. In these two ways, for example, the annual income of my subsequent chair of Materia Medica was reduced by £150 under what it was in my predecessor's time.

Not content with this, having, on my succession, purchased for the University Dr Duncan's apparatus and Materia Medica museum, they tried to claim all additions I might make, without proposing to contribute towards the cost, which in a very few years amounted to £500. But this exaction I refused to submit to, and they were compelled to withdraw it.

Presently, too, the Council began to interfere with matters of College discipline and education. But for a time they were disturbed, and their attention turned to matters which more directly concerned them, by the proceedings of a new and unexpected Commission of inquiry into their own constitution, powers, and duties.

For carrying out the Burgh Reform Act of 1832 a Parliamentary Commission was appointed, with instructions to ascertain the extent, privileges, and government of each burgh, and how far these required alteration. The Edinburgh Commission, after a long inquiry and much evidence, reported that the charge of a great University was not a suitable duty for a municipal body; and that both its government and patronage ought to be vested in an academic court, to be expressly appointed for the purpose. Although this Commission consisted entirely of a large body of Whig lawyers, and had come to this conclusion with only one dissentient voice, the Whig Government had not the courage to adopt their recommendation—deterred, no doubt, by the certainty of rousing the municipal ire, and the risk of enlisting it against their party in the city elections. But their forbearance did not prevent the city memberships from pass-

ing out of their hands into those of the Radicals a few years later.

Meanwhile the Town Council, "through all restraint broke loose," and by gradually closing the fetters of the Senatus, brought it about that no resolution of that body of any moment could be considered valid until it received municipal sanction. Thus University affairs were constantly before the Town Council, and grave questions were made the subject of discussion by ignorant, presumptuous, flippant men, who could see in them little else than a Senatus or a professor to be snubbed.

The Senatus Academicus made one struggle more for independence, the point in dispute being, as before, the regulation of the medical curriculum. In 1831, the Whig Government had erected two new professorships in the Medical Faculty, one of General Pathology and one of Surgery—but for the first time, in the case of chairs founded by the Crown, without endowment.

> "Statesmen and cooks, whate'er you do,
> In statecraft or gastronomy,
> Be sure you always keep in view
> To do it with economy."

They provided the new professors with incomes, however, on an entirely novel plan, by rendering attendance on their lectures imperative for graduation in medicine. Thus the Crown clearly encroached upon the rights which the Town Council had quite recently and successfully fought for, and accordingly the Council took offence and threatened resistance. But the Government prevailed on the Town Council to wink

at the infringement, by ignominiously surrendering to it the future patronage of the two chairs.

Besides these great changes in medical study, the Senatus Academicus in 1833 put an end to the optional system of attendance on certain classes, passed by them in 1825, and required attendance on Practical Anatomy, Clinical Surgery, Medical Jurisprudence, and Natural History, on the part of all candidates for the degree of Doctor of Medicine. But the strict University system of study, with so many new subjects added in the course of a few years, would have borne too heavily on our numerous students from England and Ireland, where there was at that time very little opportunity of studying in universities, but nevertheless no lack of good non-academical schools of medicine. The Senatus therefore resolved to admit the schools of the large London hospitals and that of the Dublin College of Surgeons to the full privileges of university schools.

The Edinburgh extra-academical lecturers, now a very numerous body, were not included in this Extension Act—because, unlike the recognised great medical schools, they were of "spontaneous generation," receiving no appointment or election from any public body; because they were a set of men having no cohesion, and subject to no authority for due discipline; because on each subject of lecture as many might become teachers as chose; and because their fees were lower than in the University. They rose in wrath, of course, at the slight put upon them, and appealed to the Town Council for redress. The Town

Council received the appeal favourably, refused to sanction the proposed changes, and substituted the rules which still substantially regulate university medical education. A candidate for graduation may study for two of the four required years, and attend any four of thirteen necessary classes, with recognised extra-academical lecturers in Edinburgh, or at recognised non-university schools, whose courses of lectures are the same in extent as those of the University.

On a surface view this appears a fair regulation. But it was really unjust in a school whose university chairs had no endowment. For a professor cannot, like a private lecturer, change his subject at will, should he find it unsuitable, or himself exposed to too formidable competition. He accepts a special office as the business of his life, by which he is to make his living, mainly or entirely; while a private lecturer takes up his occupation chiefly to bring himself into notice, and easily quits it when he thus gets into professional practice. Moreover, a professor may have at his door not merely one but several extra-academic rivals—occasionally, it has happened, so many as four—each of whom may have a considerable class, an amount of competition which it must require very rare talent to meet. The sole compensating advantage to the public from this regulation, and the only one put forth in its favour, was that when the Town Council made a blunder, and appointed an unfit professor, or when an aged professor clung too long to his chair, able teaching might be provided extra-academically, or resignation brought about by indirect compulsion. A

peculiar merit of this action of the scheme was its parsimony, as it did not involve any provision even for the declining years of an aged and meritorious professor. So helpless had the Town Council made themselves in this respect, that when Dr Alison some years afterwards was struck down in full possession of mental power and popularity as a professor, and was consequently compelled to resign after forty years of precious service, and impoverished by his lavish charities,—although they were sincerely desirous to provide a retiring salary for him, they had no means whatever for the purpose, and had actually divested the Senatus of the power of assisting them.

A very odd attempt was made to get out of the difficulty. In 1841, the Senatus, in their scheme for appropriating the Reid Fund, laid aside a portion of the annual interest as available for retiring allowances; and it was applied on the resignation of Dr Monro in 1846, and of Dr Brunton in 1848. But on the appointment of Professor Donaldson to the Music Chair, he quarrelled with the whole Senatus regarding the Reid Fund Appropriation Scheme, raised an action for interdict against the Senatus in the Court of Session, and was clever enough to get the Town Council to concur with him in it. Of course during the lawsuit the hands of the Senatus were tied up; and the case had not come to a decision of the Court when Dr Alison resigned. Great was my amazement therefore, when the Lord Provost, having requested an interview with me, suggested that I should propose to the Senatus to assign the

Doctor a retiring allowance from the Reid Fund. I at once reminded him that the Council had taken us into Court, and applied for an interdict against this very mode, amongst others, of applying the General's bequest. "Oh," replied he, "but such a vote would not be disputed: I know that the Town Council would homologate it; and I am aware your influence is such with the Senatus that, were you to propose the measure, they would consent." Notwithstanding the flattering unction, I was not to be misled, and replied at once that, if I did possess the influence he supposed, it would be put an end to were I to make such a proposal, and that the Senatus would receive with scoffs alike the proposal and the proposer.

Thus Alison, the very best of men, by an unfortunate concatenation of circumstances, of which the Town Council was the main cause, would have lived during the few remaining years of his life in straitened means, had his friends not succeeded in obtaining for him from the Crown a pension on the Civil List.

But to return from this digression—for the reasons stated above,—also because the regulations of the Town Council, while they could not and did not appease the College of Surgeons, brought into too prominent a footing the numerous petty medical schools of the English county towns, a few only of which deserved so complete recognition, — the Senatus declined to adopt these regulations in place of their own. The Town Council therefore again dragged the Senatus into Court, in order to enforce

their resolutions; and this action, like the former, ended entirely in their favour.

This blow was the finishing-stroke to the corporate action of the Senatus. Member after member ceased to take interest in affairs in which they had virtually no freedom, and were controlled by a body of men the most of them without university or other high-class education, chosen for purposes far removed from educational management, and that of the most elevated kind, and who had no sympathy with the functions of the teachers, or with the teachers themselves. Professors began to confine themselves altogether to their class-work; even my own zeal began to flag, and apathy stole apace over the senate-hall.

When the Town Council won their first action with the Senatus, the Lord Provost, meeting Professor Dunbar one day at dinner, and having reached that festive stage when some people are apt to show that there is *in vino veritas*, astounded the Professor with the information, "We have got you professors under our thumb now, and by —— you shall feel it!" We had indeed felt it, and long enough too. But the day of retribution for them and of deliverance for us was approaching. The learned professions in Edinburgh were apprised in every private circle of the slavery to which the professors were reduced, of the chill which had been creeping over University affairs, and of the great diminution of students which had taken place for twenty years progressively after the Town Council had established their jurisdiction over us, and freely exercised it in all things. Oppor-

tunities were taken by professors and others to make known to some members of Government how matters now stood with us. As the result of this stirring up of public feeling, and without planning or any particular preparation, a great public meeting was held in 1857, when Lord Chancellor Campbell presided, and strong resolutions were passed in favour of a thorough change of constitution for the University. The Chancellor's address was very good; but the only part of it I now clearly recollect was a brief interlude of warm thanks to me for having "helped him to hang Palmer"—the connection of which with university reform I do not yet altogether comprehend.

Soon after this event it was generally understood that Lord Advocate Moncreiff, now Lord Justice-Clerk, had undertaken to introduce into the House of Commons a Bill for Improvement of the Universities of Scotland; and by-and-by there was no doubt that he had set about the work for the session of 1857. But a change of Government threw him out of office, and interrupted the execution of his good intentions. His mantle thus fell upon his successor, Lord Advocate Inglis, now Lord Justice-General, who threw into the undertaking his rare ability and whole energy.

The delay was fortunate. I have never learnt how far Lord Moncreiff meant to go with his Bill. He was well disposed towards us, and knew well how much our predicament called for relief; but he must have felt himself trammelled by the connection of his political party with the Edinburgh Town Council. I am afraid, therefore, that his Bill might have been in many respects a compromise between justice

and wisdom on the one side, and party policy on the other, and especially that nothing would have been done towards reforming the department of patronage. But the Conservative Lord Advocate could feel no such restraint or bias. Quite the contrary. The unreformed Town Council was strongly Conservative, the reformed Council resolutely and hopelessly the reverse. Inglis's intention was to reduce the Town Council's share in all branches of academic jurisdiction and management to *nil* or a minimum. Had the parliamentary session not been too near a close, he would have succeeded entirely; for an overwhelming amount of evidence in the hands of Sir William Stirling-Maxwell, on the incompetence of the Town Council to exercise patronage, would in that case have annihilated them with ridicule and instances of blundering. But the Council fought every inch, even of the most untenable ground, with pertinacity, on the principle of *vincere cunctando;* and the Parliament was so near an end for the year, that, in order to carry his Bill through the remaining necessary steps, the Advocate had to compromise the patronage clause by allowing the Town Council to appoint four out of seven members in a court of patronage, the appointment of three others being left to the University Court.

In the University Court, however, the Council were allowed only two representatives out of eight, which has proved in practice to amount to annihilation of undue influence. The exuberant share of the Town Council in the new court of patronage they owed very much to the then city member, my excellent

and attached friend Adam Black. The Lord Advocate could not help yielding as he did; but the unfitness of such a court of patrons soon became evident.

The justification of the resistance of the Senatus Academicus to municipal rule over the University was amply demonstrated in a few years. I do not say that the misgovernment of our intermeddling rulers was the sole cause of a progressive decline in the number of students which took place during their sway. Other influences probably co-operated. Nevertheless it is an undeniable fact, that during the period of perpetual interference on the part of the Town Council in University affairs, the number of students fell off year after year, from 2300 in 1823 to 1550 in 1858, the year of the passing of the Universities Act. The evil effects of long misrule in a community usually continue for some time after misrule has passed away. In the present instance they lasted for five or six years more, for the total students in 1864-65 were only 1416. But with the increase of funds and the energy of free self-government, popularity soon returned; and the matriculation list subsequently rose with rapidity to 2350 in the winter of 1877-78. The Medical Faculty, in whose case most interference had taken place, lost 52 per cent of the number of their students of 1823. For several years these numbered between 427 and 444. This winter session (1878-79) the medical population of the University has reached 1050, which an average entrance in the summer session will raise to 1200.

CHAPTER XVII.

THE SENATUS.

THE CAUSE OF MEDICAL JURISPRUDENCE UPHELD — DR JAMES HAMILTON'S RETORT — HIS QUARRELS AND LAWSUITS WITH OTHER PROFESSORS — HIS HUMANITY — HIS UNEXPECTED LENIENCY TO A CANDIDATE FOR DEGREE — THE TOWN COUNCIL ATTEMPTS TO FOUND A PROFESSORSHIP OF PRACTICAL CHEMISTRY — THE LAIRD OF DALSWINTON ON WRITING TO THE NEWSPAPERS.

When the Senatus took under review the improvements in medical education and graduation which resulted in the New Statuta Solennia of 1825, many meetings of Senatus were held, and much discussion took place, relative to the numerous important changes proposed.

I had of course to uphold the cause of medical jurisprudence, which I did strenuously, with the powerful aid of Dr Duncan, jun., Dr Graham, and Dr Alison. I prepared for the Senatus a memorial in favour of my chair. The two leading arguments used were,—1. Its adoption for many years past as an imperative study for graduation at every famous Continental university—and, 2. The large share of atten-

tion it had been experiencing for some time in the British medical journals. Under the latter head I drew a statistical comparison between midwifery, the only proposed new compulsory subject of study, and medical jurisprudence, the conclusion being far from favourable to the former. I knew well enough that I should thus rouse a sleeping lion. Accordingly my memorial drew a long printed criticism from Dr James Hamilton, always an inflammable spirit, who, not content with crying up his own subject, did his utmost to vilify mine, and even myself. I was highly provoked by his overstepping the bounds of legitimate argument, and at first meditated retaliation, as I saw he had exposed his ignorance of medical jurisprudence, even when relative to his own branch of physic. But I cooled, and refrained; and I was encouraged in this course by the approbation of my senior colleagues.

Dr Hamilton's University conflicts in 1825 did not all terminate so harmlessly as that with me. He had always led a quarrelsome life. He had been in the law courts with Dr Duncan, sen., for a row of which I cannot recall either the subject or the originator. Again, he had an encounter with Dr James Gregory, a far more formidable foe, on account of some unguarded impertinence in print, for which Gregory on the first suitable opportunity caned the little doctor. Gregory had in consequence to defend an action for battery and assault, lost the suit, and was fined. Rumour said that when he paid his fine, he offered to pay it over again for another chance

of dusting the obstetrical jacket; and Gregory's son James told me he believed the story was quite true. I remember another curious dispute in which Hamilton was involved—not medical however, and not of his creating. His wife was objected to by the foolish wife of a conceited Writer to the Signet, as member of a set of subscription balls for the select of Edinburgh, on the ground that an accoucheur's spouse was unfit company "to come between the wind and her nobility." The respective husbands took up the women's quarrel. There was for some time much excitement in Edinburgh circles at dinner-tables, across which was often pleaded, with great enjoyment, the cause of "Howdie *versus* Alligator."

The disturbance in the senate-hall in 1825 involved no less a man and fine gentleman than Dr Hope. Hamilton, in one of his controversial pamphlets, had been guilty of some rudeness to Hope, an old and persistent enemy. Hope took notice of his rudeness at one of our medical reform meetings. Carried away by his warm temperament, Hope lost himself, and warming up as he went on, at last said: "In short, I may say, in the words of Samuel Johnson on a like occasion, 'The fellow lies; and he knows that he lies.'" Kind friends of course informed Dr Hamilton, who raised an action of defamation. After much conflicting evidence on a question which apparently admitted of but one answer, a jury found for the pursuer, but with one farthing damages; and each party had to pay his own expenses. The public at large approved the verdict and judgment in all respects. Hope

received from his friends a shower of epistolary congratulations, enclosing the farthing; and a story was current that he sent Hamilton one of the farthings, and asked for an acknowledgment.

My forbearance from pushing to extremity my controversy with Dr Hamilton enabled us to meet nine years later with comfort, if not with cordiality, on University matters, when I became member of the Medical Faculty, and its Dean. But we never approached nearer one another. He was the one professor who never became my private friend. It is surprising that I did not even once meet him in private society. I believe, indeed, his social intercourse was mainly confined to a narrow circle of stanch whist-players, who played most evenings together, and for considerable stakes. I have been also assured by a competent judge that "Hamilton had played whist all his life, but did not know the game."

Dr Hamilton was a short man, little in figure in all respects, very fair in complexion, plain in countenance, near-sighted, but always unspectacled. He wore a light chestnut-brown unmistakable wig. Short as he was, he stooped a little, and seemed as if constantly looking at his toes as he advanced with a quick, short, noiseless step. His pugnacity was astonishing. Every one who differed with him as to professional opinion or practice, in print or as a lecturer, met with in him an uncompromising foe, open but unsparing, and too often contemptuous. I have already said how he failed to draw my own respect because he perpetually introduced scolding criticism

into his lectures; and I have known not a few of his pupils who in after-life did not look back upon him, for the same reason, with the regard usually felt by a medical student for his university teachers. He is not the only instance in my observation of a man in a high professional position having fallen into the same failing. I have thought at times that I saw the reason of this error, and could ascertain distinctly on one occasion its actual existence. A professional man, who is also a professor, earnest and enthusiastic, who has earned for himself high authority, and thus stands out conspicuous in the public eye, may be apt to think his position imposes on him the duty of denouncing all dangerous errors, and he comes to regard all departure from his own views and practice as coming under that category; and unluckily he who speaks *ex cathedrâ*, without risk of immediate reply, is apt to be hurried along by his zeal into language too personal for simple argument. Was Dr Hamilton one of these? I know not; for I never had such personal acquaintance with him as to know.

It may seem that I am too hard on Dr Hamilton, and that I saw in him nothing but what was to be condemned. But I must guard myself against such misconstruction. Apart from his quarrelsomeness and its results, there was much to approve and little to blame in his character. He was a humane man. He founded the "Lying-in Hospital," now the Maternity Hospital, for the relief of the poor and the instruction of his students; and he supported it for many years partly with his own means. He pos-

sessed that wonderful sway over his patients which could have a firm foundation only in a kindly disposition and manner. He would not yield to the exactions of the great. He refused to attend in labour ladies of fashion dwelling at their country-seats. He went out of town on consultations like other physicians, but he would not dance attendance on great ladies expecting confinement in the country. For that purpose he "would not go off the stones. They must come to him,—he would not for their sakes leave their town sisters all the while to shift for themselves." Before midwifery was made imperative for graduation, he taught crowded classes of students during a three months' course three times a-year; and his hospital was designed in part to afford them the opportunity of practical instruction. As an examiner in the Medical Faculty, he often was conjoined with me. Thus I had good occasion to admire his clearness, and above all his kindly manner with the candidates, his patience, and his mildness in judgment upon their performance. For a man of his intolerance of heresy from his own doctrines, he had often a bitter pill to swallow when examining a candidate who had been taught midwifery at another school; but even in such circumstances his leniency was marvellous. I remember especially one occasion when he had in hand an Irish candidate who had got his midwifery in Dublin, where the teachers were, in Hamilton's opinion, heterodox throughout, and were the frequent objects of his professorial lash. The unlucky victim ran counter to the

Hamiltonian creed in all his answers, and was too stolid to yield one inch to his examiner's argumentative interrogatories. I accounted him a doomed man. But when Hamilton and I came to consult together, he said: "You have heard him. Did you ever hear such ignorance? But he got on very well with you, and I see from his paper that he has done well with our colleagues. I know he answers correctly as he has been taught at Dublin by a set of idiots. How can I punish him for their fault? I must let him pass. But as for trusting him with the delivery of a woman, I would not trust him to deliver a cat!"

One word more in passing as to my forbearance from controversial print. A few years later I fell into the mistake of indulging in that weakness, when the late Dr Macintosh made an attack, full of ignorance and rashness, upon my commentaries on his evidence in a trial for poisoning. But I resolved to hold my hand ever afterwards in the like circumstances; and I have steadily followed that rule, to my own great comfort, although on one occasion I was sorely tempted to transgress for the second time. As Dean of the Medical Faculty, I had to defend the chair of Chemistry before the Town Council against a dangerous attempt by the late Dr Boswell Reid to get the Council to found a professorship of Practical Chemistry in his favour. The teaching of practical chemistry in the University was first undertaken, with the sanction of Dr Hope, by his assistant, Dr Anderson. Reid succeeded Anderson in office, and taught with zeal and success. His teaching was too

much, however, in the recruit drill-sergeant fashion for my taste—"With your left seize your retorts. Unplug your stoppers. Handle your acid bottles. Pour in your acid," &c. Such, as described to me, was the style of instruction to rows of students, all similarly armed, and obeying simultaneously. I found my clinical clerks in the Infirmary came out of his hands ignorant of the simplest manipulations in practical medico-chemistry. But he had the skill to put his teaching in a popular form, attracted crowded classes, and got a name as chemist with the multitude, although I am not aware that he ever added a single fact to the science he constantly pursued. Intoxicated with success, he ventured on a bold step. Dr Hope had granted him full liberty of action, and, as I was given to understand, a liberal pecuniary arrangement. It may be imagined how astonished and wroth was the professor, when his assistant tried to trip up his heels, and damage the chair of Systematic Chemistry by detaching from it the practical department. Reid failed, and my arguments had a good deal to do with his defeat. Soon after, when I was running about, free from all University and other cares, among the woods and on the moors of Dalswinton, my host, Mr Leny, coming down-stairs one morning, saluted me with,—"Doctor, have you seen the 'Scotsman'?" "Yes." "And Dr Boswell Reid's letter against you?" "Yes." "Can you answer him?" "Yes, and demolish him." "Then, my dear Doctor, don't." "I do not mean to do so." "Quite right. The result of my observation

in life has been, that in such circumstances many a man has repented of acting, but d——l a soul of forbearing." My principles were thus fortified by the opinion of a very good judge and warm-hearted friend; but at the same time, I scarcely think my impetuous and high-tempered adviser would have taken his own advice had he been in my place. Many a time have I told this story to my younger friends, who had been tackled as I was by Reid, and have assured them of the comfort there is in following such a rule—not to mention the positive gain in precious time otherwise misapplied. I am sorry that some of them in the Senatus Academicus, far from following my example, seem never content except when fighting in newspaper print. To them, were I an autocratical University Rector, I should be disposed to apply the jocular recommendation of Lord Brougham to the Council of the University of London, of which he was chief founder, that, for the sake of peace within its walls, the professors should be forbidden to print anything short of an octavo of 300 pages. I would make an exception of Professor Blackie, whose ἔπεα πτεροέντα are always amusing, often instructive, generally in the right, and never offensive.

CHAPTER XVIII.

A PEDESTRIAN TOUR.

UNEXAMPLED DROUGHT AND HEAT IN 1826, FROM MARCH TILL AUTUMN — EDINBURGH FASHIONS CHANGED THEREBY — THE CROPS VERY EARLY — THE SEVERE FROST OF 1813-14 — MOUNTAIN RAMBLE WITH DR E. TURNER — ASCENT OF BEN LOMOND FOILED BY THE MIST — THE TROSSACHS INN — HOW TO SOUND A POOL — A REFRESHING SWIM — GLEN OGLE TO KILLIN — ASCENT OF BEN LAWERS — THE FATHOMLESS POOL AT MONESS — DUNKELD — A GUIDE TACKLED UPHILL — PERTH.

I MUST now fall back again to the year 1826. The spring and summer seasons of that year were remarkable for the extraordinary drought and heat which prevailed for many continuous months. No such seasons could be recollected by anybody, and assuredly there has been nothing similar in this country since. I have never seen any meteorological history of that unexampled year, but I can recollect many incidents illustrative of its general character. The fine weather set in with the beginning of March, and continued, with scarcely a check, well into the autumn. I remember well that on the 6th of March, while on a visit to Kirknewton manse, ten miles west

from Edinburgh, I made one of a party of ladies and gentlemen who took a walk through the woods of Almondell, the seat of the Earl of Buchan, and who, in consequence of missing the right path, had to allow the ladies a rest on the way home. We sat down on a grassy bank for the purpose, and rested there in great comfort for an hour. From that single incident it it is evident how warm the weather then was, and that the drought had begun many days earlier. There was no back-cast of weather in the rest of the spring, as is too often the case in ordinary years; and the drought prevailed and the heat increased till the middle of June, when a thunderstorm with heavy rain cooled the air for a day or two. But the heat then became greater than ever, and there was continuous sunshine and no rain till after the middle of July, when again there was thunder and rain, after which sun, heat, and drought ruled the season once more. In the middle of July, while engaged in studying practically the rules for exact thermometric observation of atmospheric temperatures, I found that my thermometer marked 84° Fahr. in the shade on three successive days at 3 P.M.

This weather, so different from what we had been accustomed to in Scotland, effected in some measure a change in the habits of the population of the city. The junior members of the male sex forsook the thick oppressive neckcloths of the time for a Byron collar and a narrow silk ribbon, with a gold ring run upon its ends—a fashion which I introduced for the first time into the Senatus Academicus, to the high disap-

probation of our ancient *arbiter elegantiarum*, Dr Hope. Few people, whom business did not call forth, ventured out till sunset, when all promenades in and around town were crowded with gay throngs. Sea-bathing became an indispensable luxury. Edward Turner, at that time my *alter ego*, went with me almost daily to Trinity for a swim in the Firth of Forth, then so warm that we could remain an hour in the water. The Parliament House lawyers chartered daily all the hackney-coaches of the city, and started in fours at two or three o'clock for Portobello, Leith, Newhaven, Trinity, or Granton, to cool their overheated and dusty bodies. A single exception was Mr R. Forsyth, a tall, bony, rather elderly, censorious advocate, who preferred for exercise to drive five or six miles into the country outside one of the stage-coaches, and walk back to town again. One forenoon he asked David Syme, brother of the professor, to join him; but he declined, because engaged with three others to drive daily to Newhaven to bathe. "What!" said Forsyth, "are you one of the dirty beasts that need to wash themselves every day?"

So great was the heat and so continual the sunshine during the summer, that all the white crops round Edinburgh were in the farmyard before the 1st of August. The grain everywhere was good, but the straw very deficient, especially in such districts as those in Dumfriesshire, where the soil is gravelly and stony, and the rain in ordinary years rather superabundant. Some years afterwards, Mr Leny of Dalswinton, in Lower Nithsdale, told me that he had to

remit nearly a third of his rental, and that some of his hill-tenants had nothing at all with which to pay him. On his home-farm a field of wheat was reaped with scissors, the stems being too short for the sickle. The extensive grass-parks round the house were so burnt up to the very roots, that large patches of uncovered soil were seen for several years afterwards, and complete recovery did not take place till the tenth season. I learned also that great distress was occasioned among cattle on many farms in Berwickshire by the drying up of springs and rills which were never known to have failed before; and I was assured that one farmer had to drive water for his cattle nine miles from the river Whitadder.

No astronomer has yet been able to inform me what relation was borne by this extraordinary year to the degree of the sun's bespottedness; and no believer in cycles of changes can guess what is the cycle for the return of such a spring and summer as in 1826. If it exists, there is already proof that the period of revolution must exceed fifty years! Still longer must be the cyclar period for the return of the protracted hard winter of 1813-14, when severe frost lasted for two months, and, after four days of fresh weather, for two months more. When at last the ice broke up on Duddingston Loch, I measured it, and found it to be 11 inches thick. During the long frost the loch was daily frequented by crowds of skaters, curlers, and fashionable promenaders, and on Saturdays two military bands were in attendance. Snow frequently fell, but almost entirely during the

night; and it was regularly swept up in the morning into heaps scattered over the ice. These ere long became extensive mounds higher than one's head, so that the loch was laid out in irregular streets and squares, among which it was not an easy matter to find a party after being once separated from them. Duddingston has never been so gay a scene as in the winter of 1813-14.

In August of this year (1826), for the first time since 1817, I indulged my fondness for mountain rambling in a short pedestrian tour in the near Highlands with Dr Edward Turner.

We went to Glasgow by coach, thence by steam on the Clyde to Dumbarton, and there commenced our foot-journey next forenoon with a march to Loch Lomond and Rowardennan. We were nearly stopped short, however, on the wrong side of the loch, at the innless village of Lower Inveruglas; for the ferryman, in absence of his mate, professed himself unable to row us across to Rowardennan Inn, right opposite. Luckily we were both of us pretty strong oarsmen, and he was satisfied to have us for a crew. Before we got far over we found the reason for his hesitation was, that his boat leaked so badly that a single rower could scarcely have taken his passengers across before it became water-logged.

On the second morning it was our intention to climb Ben Lomond, and descend, as in 1816, by the north-east face to Aberfoyle—a five-hours' journey; and our innkeeper having assured us that a dense

cloud which capped the summit would probably disperse before we should reach it, we started with good hopes, and without a guide, in a fine, clear, sunshiny forenoon. On approaching the ridge of the long southerly spur separating Loch Lomond valley from that of Loch Ard and Aberfoyle, at that part where the spur leaves the final pyramidal peak of 700 feet, the mist seemed to be creeping downwards. We therefore made a rush to the crest of the ridge, that I might refresh my recollection of the way down to Aberfoyle before the mist should envelop us. We then sat down for an hour at the verge of the mist, in very doubtful reliance on our innkeeper's forecast, sometimes admiring the perfectly flat ceiling of cloud, which, sharply defined, seemed to extend for miles eastward from a few feet above the level of our eyes, and sometimes scanning beneath this screen the clear definition of all the lovely islands and shores of the lower reaches of Loch Lomond. At length our patience gave way; but Turner protesting that he dared not show face in society without reaching the top after being so near it, I undertook to conduct him thither through the mist. As we ascended the mist grew denser and darker, and at last presented an appearance as if a black lofty precipice loomed from behind it to stop the way. Turner then declared he had enough, and that we ought to return. We had done fully half the remaining ascent, and had not above 300 feet more to climb. But Turner's decision was very welcome, for I had ceased to have perfect confidence in finding the way back again.

The moment we commenced our retreat, we had a convincing illustration of the danger of mist on a mountain abounding in precipices. For Turner at once proceeded to descend at right angles to what had been our course upwards. I called to him that he was going down straight westward upon Loch Lomond. At first he would not believe me. I stood fast, however, and bid him go on till I should call to him to halt. I was surprised to see him begin to vanish when scarcely fifty feet off. I then shouted to him to stop, and say what he thought. On his replying that he did not know what to think, I told him to come back, and rule me in like manner. He did so; and taking a different direction, I was able to call out, "All right! come on!" Twice again he acted thus as rear-guard; and then we were confident of our course. In point of fact, I had, in our ascent through the mist, kept as near as I prudently could to the edge of the northern precipice, in order to take it for my guidance down again—which I accordingly did. Yet that is not altogether a safe rule for one unaccustomed to mist on a mountain-top. For in descending, even on green turf, much more upon bare rock, in such a place, the tourist is apt to be misled by a tongue leading into the face of the veiled precipice, and there gradually contracting, and coming to an end. We met with no such misadventure, but soon got out of the cloud into clear air and bright sunshine; rapidly descended a long, steep, grassy slope to the head of Loch Ard; walked swiftly along the smooth level road

close to the edge of this most beautiful lake; and reached Aberfoyle in good time and good luck. The inn possessed only two spare rooms for customers: one was occupied permanently by a sportsman as his shooting-quarters; and we two got the other, a double-bedded room. But, after we were asleep, there arrived by post-chaise from Rowardennan a touring-party, consisting of an East India civilian, his wife, son, and man-servant, who had spent a long day in rounding the southern spur of Ben Lomond which we had crossed, and, by a circuitous, rugged, hilly road of at least twenty-five miles, had reached Aberfoyle benighted. On my rising in the morning, I learnt that the son and man-servant had slept comfortably in the hay-loft, and the civilian and his lady uncomfortably at the inn-door in the carriage, in which I descried the lady finishing her toilet. We had made acquaintance with the party before starting from Rowardennan; renewed and improved it at Aberfoyle, with much merriment over our luck to have been asleep before their arrival, which might otherwise have imposed a severe self-sacrifice on two tired pedestrians; and agreed to meet in the evening at dinner at the Trossachs.

But Turner and I had to make only a short cut of seven miles over the intervening hills, while our new friends had to post twenty-seven miles of circuitous hilly road by way of Callander, where they failed to get horses till the subsequent day. As we more movable tourists approached the Tros-

sachs, the weather became hazy, rain began to fall, and soon the whole country was shrouded in mist. We found our way, nevertheless, to Loch Katrine, but saw nothing beyond fifty yards round us through very dense mist. We arrived at our inn much chagrined; and as the rain now fell in torrents, we had to keep within doors all the evening.

The Trossachs inn was, in 1826, a very different caravansary from "Stewart's house" of Ardchianacrochan in the year 1816. The scenery of the 'Lady of the Lake' had been for a few years visited by increasing crowds of tourists; and the solitary farmhouse had been replaced by "The Trossachs Hotel," capable of accommodating thirty-seven sleepers, provided the several parties were content to break up into quartetts of males and females in barrack-rooms, each furnished with four beds. Our barrack, in an attic, was occupied by an *attaché* of the Austrian embassy, old Bish the once famous lottery-contractor, Turner, and myself. Bish was fast asleep when we took possession of our quarters. The Austrian, a very near-sighted man, having taken off his spectacles, was on the point of turning in beside Bish, when we called out to him that there was a gentleman already in that bed. "Where is he? I do not see him!" replied he, with his mouth close to the sleeper's ear, but without awaking him. He managed to see him at last, however, and repaired to the empty bed; and next morning we discovered that the cause of Bish's imperturbable quiet was that he was as deaf as a post. In the middle of the night I awoke with a

bright star shining on me through a skylight window. So I got up, and, rousing Turner, we gazed admiringly on a glorious, clear, starlit heaven, the harbinger, after heavy rain, of fine weather. We thereupon at once agreed to abandon our intention of hurrying on to Callander, and to pass the day on Loch Katrine. We therefore chartered a boat, and spent a charming forenoon in rowing from place to place, and climbing various ascents, in search of new points of view. At starting we soon overtook a four-oared boat which contained our Austrian and his countryman, each pulling at his own time, and in his own fashion, and evidently provoked that we should pass them so easily, and that their most furious efforts only made their case worse.

We hired a gig the same evening to Callander, and visited the Falls of Bracklin, where we made a somewhat interesting observation. At the lowest and principal fall the Bracklin breaks through a rocky wall into a fine pool, open down-stream and easily accessible. Owing to long drought the water had not been coloured by a flood for some weeks, so that the stream must have conveyed nothing but the water of springs. Accordingly we were struck by observing the distinctness of the stones at the bottom of the pool, and resolved to ascertain the depth, which was evidently considerable. A tall vigorous brier-shoot, fourteen feet long, supplied the measure. Stripping off the luxuriant leaves except at the summit, and tying a big stone to the other end, I swung the brier into the middle of the pool. It sank en-

tirely, with at least two feet of water over its leafy top; nevertheless we could quite easily trace the stem to the bottom, and distinguish the stone attached to it. This extreme degree of transparency is very rare in Scottish rivers and lakes. The water of the Highland lakes is usually called very transparent; but I have found that in Loch Earn, Loch Lomond, and Loch Katrine, a bright white disc of porcelain cannot be discerned at a greater depth than eighteen feet.

Next forenoon we again shouldered our knapsacks for Lochearnhead. For a long distance we scrambled up the edge of the impetuous stream which descends in a deep gorge from Loch Lubnaig; then regaining the road, we took up a sharp four-and-a-half-mile pace, in order to follow the prudent pedestrian rule of reaching evening quarters an hour before the crowds of ordinary tourists who arrive late in their chariots. Presently we swung past five pedestrians resting at the roadside, who instantly began to bundle up their kits, with the evident intention of contesting the first claim for beds at Lochearnhead inn. This was hard, because the inn was ten miles off, and the weather was intensely hot; but being in good condition, we gradually even improved our pace, soon shot ahead of our rivals, and kept up our speed to the end. After securing beds and ordering dinner, we rushed to the lake, and in defiance of ordinary prejudices plunged hissing hot overhead into a pool for a short swim. This measure is most effectual for preventing the dry feverish heat which is apt to

ensue during the evening after a long hot forenoon walk and a good dinner. Nor is there any risk, if the bath be taken before resting and cooling—the hotter one is, indeed, the better—and provided it be very short, especially when preceded by fatigue. While we were dining, an hour and a half after our arrival, our competitors came up to the inn door ignominiously in a cart, and received the unwelcome information that there was not a hole or corner left to put them into, and that they had no alternative but to proceed eleven miles farther on to Killin.

Thither we followed next morning, hiring a gig through Glen Ogle, in order to carry out an intention of ascending Ben Lawers the same forenoon. Not far from the summit-level of the road in ascending from Lochearnhead, on the left slope looking northward, there is well seen from the road opposite a long and broad line of broken rocks, many of them of great size, piled on one another in vast confusion, and without a precipice above adequate to have furnished them by gradual decay. It would appear that this accumulation of ruins must have arisen from the destruction and descent of an entire cliff, shattered and annihilated at once by some sudden catastrophe; and such is the local explanation, for the fall is said to have occurred on the occasion of the great earthquake of Lisbon in 1755. This cataract of rocks is now well seen from the railway, which, in ascending from Lochearnhead, crosses the middle of it among its largest and most tumbled masses. One

huge block, I think dangerously, overhangs the railway.

After breakfast at Killin we made an early start for Kenmore. A few miles on we quitted the road for the hillside, and took a slanting course up the concave southern face of Ben Lawers. On reaching the west base of the terminal dome, we wound round to the north face, to enjoy the cool north-west zephyr. Here Turner, though fresh from the Alps, where he had several times ascended much greater heights without inconvenience, began to suffer so severely from the *mal des montagnes* that we had to pause for a few seconds every twenty or thirty steps, in climbing the last rather steep 300 feet. At the summit we climbed the ten-foot Ordnance Survey cairn, and upon the top of it stood on tiptoe, with the satisfaction of thinking that our eyes were looking out from the height of 4000 feet (3984 + 10 + 6) above the sea-level. We descended very rapidly down the eastern spur of the mountain, cooled ourselves with a plunge into Loch Tay on reaching the highway again, and arrived at Kenmore inn in good condition.

Next day we walked down Strath Tay to Logierait, through a very lovely country. At Aberfeldy we went aside up a steep, narrow, finely wooded ravine, to visit the Falls of Moness; and we took a guide, so as to miss nothing and lose no time. The water was very low from long drought; consequently, in going up the ravine we could find no pool for our daily swim. At last we were tempted by the deep nar-

row pool into which the upper and principal fall tumbles, — black-looking and forbidding at most periods of the day, from being closely overhung by precipices, but lighted up at the right moment for us by the sun darting its rays down over the verge of the fall. Our guide objected, because "naebody had ever fund a bottom in that hole." Nevertheless in we went, to his great surprise; and I surprised him still more by making him tie together two long twigs of mountain-ash, and satisfying him that his bottomless pit was nowhere more than 16 feet deep. (I found a few years ago that the "Trooper's Loup" in Glen Veich, at Loch Earn, falls down a narrow, perpendicular, semi-cylindrical chimney, into a roundish basin about 16 feet wide and 26 feet in depth. The deepest river-pool hitherto sounded by me is one of 42 feet in the Findhorn, at the Bridge of Daltulich.) At Logierait we could get no refreshment save the cold remains of a singed sheep's-head; and as that did not suit my English companion's culinary prepossessions, we pushed on to Dunkeld.

On the following day we visited the chief sights of this magnificent district, and ended the day's work with a long walk through the extensive surrounding grounds and forest. Our guide—for here tourists had to submit to have a guide within the ducal demesne—asked whether we chose "the long or short course?"

"The long one, to be sure."

"It's sixteen miles."

"Very good."

"And two high hills to climb."

"All right—up we go."

"Then we maun be stappin' oot."

At the word the long, lanky Highlander stepped out at a four-and-a-half-mile pace. When we began to ascend the first hill, Craig-Vinean, said to be 1000 feet above the valley, it was plain he meant to push us and try our mettle up an interminable zigzag footpath. Turner was not in good condition. It was agreed, therefore, that I should tackle Donald, which I did by sticking close to him, and keeping him constantly talking. The rascal, without a moment's halt, moved steadily on to the top—which, however, he reached completely blown, and no doubt much surprised that I, far from fresh certainly, was nevertheless comparatively sound. He did not discover the trick; and when we came to the next long ascent of Craig-y-Barns, he was content to take it at leisure.

We drove the next forenoon to Perth; and after visiting the principal places of interest in its neighbourhood, took the mail-coach in the evening,—Turner for Edinburgh, and I to join some friends at Bridge of Allan. Thus ended a most agreeable little trip. Turner was the most congenial companion I ever had, not only for intelligence, but also for pluck, contentedness, and above all for the facility with which he deviated from a prearranged route under unforeseen temptation.

CHAPTER XIX.

PROFESSIONAL HISTORY.

APPOINTED PHYSICIAN TO THE ROYAL INFIRMARY IN 1827—AIM TO BE CONSULTING PHYSICIAN — DR BUCHAN — TWO PHYSICIANS SUCCEED DR JAMES HAMILTON — NUMBER RAISED TO THREE ON DR CULLEN'S DEATH—DR SHORT — MARRIAGE AT KIRKNEWTON IN 1827 — A WEEK'S VISIT TO GLASGOW — ANECDOTES OF DR THOMAS THOMSON—RETURN TO THE FAMILY CIRCLE.

In 1827 a new bent was given to my faculties and plans for the future by my being appointed one of the physicians of the Royal Infirmary. My professorship did not seem likely to place me in a favourable position in point of income. I had to keep in view, therefore, the chance of medical practice. For that end it behoved me to maintain familiarity with it; and evidently nothing could so thoroughly secure that object, and lead to the chance of my becoming consulting physician, without beginning as a general practitioner, as the medical charge of the wards of a hospital.

I was not then entitled to take part in the University system of clinical instruction by virtue of my

professorship. The chair was not promoted to that position, and to a place in the Medical Faculty, till 1833. But I had been for a year or two a physician of the Royal Public Dispensary, to which I was appointed through the influence of its benevolent founder, Dr Duncan, senior. I had been too long trained, however, to the precise and facile observation of hospital practice, not to tire very soon of the jejune weekly consultation-sittings, and the loose observation inseparable from the policlinical visits of the dispensary. My hospital post was therefore both great gain and great relief, and I resigned at once my dispensary office; but I did not succeed to the other without a hitch.

Dr James Hamilton, senior, had resigned his place as Infirmary physician two years previously, and was succeeded by Dr James Buchan, a retired "Physician to the Forces," who had deservedly gained much credit for having volunteered to take charge of the French Plague Hospital, when Napoleon forsook his Egyptian army. Buchan had made a collection of documents connected with his service, under the intention of subsequently publishing his experience of the plague. But on his voyage home the vessel in which he sailed was destroyed by fire in the Mediterranean, and all his papers were lost.

Dr Buchan was now a little, fair-complexioned, near-sighted, soft-speaking, quiet, slow, hesitating man, several years on the wrong side of fifty, without having given any sign of special medical knowledge, or of any other professional prominence, save the one

courageous deed of his early life. But through some incomprehensible mistake, the Infirmary managers, twelve men of great intelligence and high consideration in the city, were brought to regard him as fittest for the appointment, though such men as Drs Home and Duncan, jun., were also candidates. Whatever might have been Buchan's object in desiring it—probably the hope of filling his predecessor's place also as a consulting physician in town—he must have been soon undeceived, for in two years he resigned.

I applied to be his successor, but met with a formidable rival in my old companion Cullen. It had hitherto been a condition that every physician of the Infirmary should be a Fellow of the College of Physicians, and Cullen was only a Fellow of the Surgical College. This obstacle was in some degree lowered by his becoming, in passage to the Fellowship, Licentiate of the College of Physicians, which position he could claim at once as an Edinburgh graduate. But there remained the obstruction of my pretensions to the office, which was not so easily disposed of. I was Fellow of the necessary College; I was senior graduate by five years, as Cullen was late in taking his degree; and, as professor, I was ahead in public position. But one member of the Board of Management was his trustee; another was his father-in-law; a third was his father-in-law's partner in business; and Cullen himself was, through his mother, one of the powerful Edinburgh clan of the Hopes, at the head of whom stood the chairman, Lord President Hope of the Court of Ses-

sion! Nevertheless, these men were too wise to be ignorant that they could not pass me over. So they settled the difficulty by appointing both of us.

This easy way of evading a difficulty so gratified them, indeed, that they applied it a second time soon afterwards, when a vacancy arose from the premature death of Cullen. James Gregory, second son of our famous Professor of the Practice of Physic, a young man of sterling talent and high promise, and a universal favourite, seemed the natural successor of Cullen, grand-nephew of the great professor of the same chair. But the managers were again unaccountably bewitched by another retired Physician to the Forces, Dr Thomas Short. His only ostensible title to fame was his official presence at the dissection and embalming of the body of Napoleon at St Helena—together with a certain likeness in features to the mighty conqueror, and a great resemblance to him in figure and attitudinising. He had strong interest in some way, however, with a powerful member of the Board of Twelve; and thus it fell out that, as the managers would not pass by so popular a man and name as Gregory, they resolved that such duty as Dr Hamilton did to their entire satisfaction a few years before singly, and such a post as Dr Spens still continued to fill singly with efficiency, required now the services of three physicians, in order that Dr Short might be one of them.

Through this success, his handsome *physique*, a pretentious voice and manner, and the thrusting of him on the patient public by Dr James Hamilton,

jun., it was thought by some that Short might float into consulting practice in Edinburgh. For a twelvemonth indeed he swam; but he sank soon, and utterly. It was surely a prodigious mistake on the part of his friends to imagine, that a man of no prominent professional merit should oust men of such talent and acquirements as Abercrombie and Thomson, already in firm possession of the field, or outstrip the quickly rising reputation and popularity of Alison and Davidson.

I had not long entered on my office as Ordinary Physician of the Infirmary before I had ample occasion to make use of my new opportunities. For in 1827 the second Edinburgh epidemic fever had already set in; and I took a principal share in the treatment of it from first to last.

In the gloomy month of November of this year (1827), and in weather suitable to the season, took place my marriage, in the manse of Kirknewton, in presence of about a dozen friends, Dr Simpson officiating, and Dr Turner acting the part of my right-hand man. It was not yet the day of nuptial *déjeûners*, which appear to me alike bad in point of taste and for sound digestion. We set off at once for Hamilton, which I chose for our first resting-place, thinking that a ducal burgh would not be without a suitable hotel. But we met with indifferent accommodation, and rather Lenten entertainment. So next forenoon we went on to Glasgow, to bury ourselves in the turmoil of the already overgrown capital of the west, where

we found excellent quarters in the Royal Hotel, George Square. We then called by arrangement on much-esteemed friends of my family—Dr Thomson and his lady—by whom we were quite overwhelmed with kind attention. Thomson, a hard student, and devoted to study, actually himself escorted us to the principal sights of the town; but the greatest curiosity we saw in Glasgow was Thomson himself.

Few men at that time in Scotland were so accomplished as Dr Thomas Thomson. He was a good classical scholar and mathematician, a thorough geologist, a learned chemist, and, moreover, a theologian—for when he graduated at Edinburgh in 1799, he also became a licentiate of the Church of Scotland. He had conducted in London the 'Annals of Philosophy' for several years with great success, the foremost English scientific journal of the day, till he was appointed Professor of Chemistry in the University of Glasgow, in 1818. In this office, which he held till 1852, his labours were incessant, both in instructing the ordinary University students, and also in training young chemists practically for the manufactures. He was a very little, well-made man, with small, sharp, handsome features, a calm, contemplative eye, and smooth, untroubled brow. He was known by his friends to be at bottom a warm-hearted, good-natured man, who did unobtrusively many a kind act. No man could have imagined, to look at him, that the most glaring ingredient in his character, so far as conduct was concerned, was an uncontrollable propensity to sneer—not behind-backs, but in presence of

his subject. He did so without any appearance of anger, malice, or sense of humour, but rather with a mournful look, as if sorrowing that he should feel called upon to exercise in the particular case his privilege as follower of Thersites. Hence, though his sneers were often bitter, and not infrequently rude, his friends, when assailed, only laughed; but strangers were astonished, and if not quick in apprehension, were apt to resent his censorship as insolence.

He assailed me on the present occasion at his own dinner-table. But I had been trained both to give and take in this line of dialogue, at the table of the Infirmary as well as at that of our Paris restaurant; so that at last Mrs Thomson implored him to desist, as he came off somewhat ingloriously from the contest. But he fairly discomfited me many years afterwards, when we met accidentally in Edinburgh. By this time a man about eighty, he had retired from active duty for a few years; and I had been misinformed that he had been entirely laid aside, was never out of doors, and not much out of bed. I was rather startled, therefore, by meeting him one day face to face, looking remarkably youthful and fresh,—so that I must have surprised him by the heartiness of my assurance that, after an interval of three or four years, I found him not in the least changed. He at once answered with a preliminary grunt—"Hmph! you are so much changed for the worse, that at first I did not know who you were!"

I was told by my brother John another tale of this amusing ferocity. In his early years, Thomson de-

livered at Edinburgh a course of lectures on chemistry, which my brother attended. One day a fellow-student, the late Dr Thatcher, went up to the table after lecture, and made trial of the strange, rather pleasurable sensation caused by drawing the fingers to and fro through a mercurial trough. But this student of chemistry had forgotten, possibly did not yet know, the strong avidity of mercury for gold; and being a bit of a dandy all his life, he wore that day three gold rings on the hand so employed. Next day he went up to Dr Thomson, and communicated his mishap. "Two of the rings," said he, "have crumpled to pieces. What should be done for the third, which still keeps its shape?" But all the satisfaction he got was a sorrowful look, and the apostrophe, "Who but a fool would wear three rings on his fingers, or draw them through a pool of mercury!"

We thus spent pleasantly in Glasgow the greater part of our week's marriage-trip; and then posted home by the familiar road, to receive the true welcome of my mother and brother, and the prompt congratulations of crowds of old friends.

For eight years afterwards we all lived together in great harmony, and mutual affection, and regard, and social happiness—interrupted, however, by my mother's death, and in 1832 by my again suffering two severe attacks of fever.

My mother died at the good age of seventy-two, having enjoyed good health and sound faculties till a few days before. She had been subject all her life

to attacks of headache, from which, however, she kept generally free by keeping her hair cropped extremely short, and by frequent washing of the head with cold water. I thought she carried these precautions to excess. But the manner of death, by paralysis, and her success in reaching old age, with all the faculties of her mind in vigorous condition, appeared to justify her regimen.

CHAPTER XX.

PROFESSIONAL HISTORY.

'EDINBURGH MEDICAL AND SURGICAL JOURNAL'—EXTENSIVE EPIDEMIC FEVER IN 1827 AMONG THE POOR—CHARACTERS OF THE FEVER —ARTICLE ON FEVER IN THE 'LIBRARY OF MEDICINE'—INTERMITTENT FEVER — EPIDEMIC DYSENTERY — VALUE OF OPIUM IN THIS DISEASE — RESEARCHES ON DISEASES OF THE KIDNEYS — A BOOK THEREON—LECTURES ON THIS SUBJECT.

When I was appointed (1827) Ordinary Physician of the Infirmary, I had begun to compose my book upon poisons; I was often employed in questions, chemical and medical, before the civil and criminal courts of law; I had been publishing various papers on subjects connected with medical jurisprudence, more especially upon several trials for poisoning with arsenic, real and imputed, and on the influence of the poisonous gases on plants, and the injurious effects produced on surrounding vegetation by the chemical manufactories which evolve the irritant gases; I had also just become, along with Dr Craigie, joint editor of the 'Edinburgh Medical and Surgical Journal.' My hands were therefore already full when

I had to add the ordinary daily duties of an Infirmary physician, and they were filled to overflowing by my entrance on duty happening to concur with the outbreak of an extensive epidemic fever.

During the previous epidemic, ten years before, the annual admissions into the Infirmary on account of fever had rapidly risen from 100 to 2064 in the two years of 1818 and 1819 together. Gradual subsidence in the next four years restored the original rate of 100 in 1823. But in two years more it began to rise again with rapidity; and in 1827 and 1828 there were admitted 3900 fevers, and next year 770. More accommodation becoming necessary, Queensberry House was again opened as a fever hospital, and its 150 beds were kept occupied for a long time. The labour thus thrown on the medical staff of the Infirmary was consequently great. The fever-house duty was undertaken by us in rotation; and during my three months' turn of service I had charge of 150 patients. Though aided by an able medical superintendent, Dr William Reid, elder brother of Dr Boswell Reid, and by two active well-trained clinical clerks, my visit occupied three hours daily, notwithstanding that I examined minutely those only who were severely ill.

This epidemic arose, like the last, during a protracted period of want of work and low wages among the labouring classes and tradespeople. It prevailed only among the working classes and unemployed poor. It was scarcely met with at all in the middle ranks of town life, and there only under circumstances of pecu-

liar exposure among the sick. The lower the position of the population, the wider were its ravages. Hence the Fountainbridge and West Port districts, the Grassmarket "closes," the Cowgate, and the innumerable narrow "wynds" descending on either of the steep flanks of the long slope of the High Street and Canongate, supplied a vast proportion of the sufferers. Certain of these wynds and closes were notorious in 1818-19 for their fertility. I am sorry I am unable now to attach a numerical ratio to the continuous stream poured out upon us from the very same localities—dens of disease now fortunately, the worst of them at least, levelled with the earth by Provost Chambers's city improvements. Great pains were taken by the authorities to discover the sick, and clear them out into hospital. But no attempt was made, as in more recent times with great success, to clear out also the infected healthy, and protect them in modified quarantine houses. Hence, when the fever penetrated into one of its favourite localities, it never left the spot so long as there were victims to be laid low.

This epidemic presented precisely the same varieties which I had observed on the former occasion. There were many cases of inflammatory fever (the synocha of Cullen), not so many of low fever (typhus), and an intermediate proportion of a two-faced form (Cullen's synochus), which for a week was undistinguishable from inflammatory fever, and then put on the typhus character. Towards the close of the epidemic the writings of Bright put us on the alert for the discovery of enteric typhus; but I can only

say that, although we had numerous thorough dissections of cases assuming the typhus form, I myself never saw a trace of enteric disease among them.

The inflammatory fever presented the same extreme violence of reaction as in the former epidemic—the same tendency to abrupt cessation with profuse sweating—the same liability to return abruptly a few days afterwards—and the same disposition to depart finally in a few days more, and again abruptly with free perspiration. The cases of typhus were more frequently severe than in 1818-19. Icteric synocha occurred also oftener, though far from frequently. In a few cases I noticed the recurring stage of synocha put on the regular form of tertian ague. I watched more narrowly than before the usual phenomena of recurrence in that fever, and soon recognised that it was almost invariable in a first attack of the disease, that diaphoretic crisis took place between the fourth and seventh days inclusive, that recurrence happened regularly on the fourteenth, and that final recovery ensued with perspiration on the seventeenth. In a young adult these incidences were so regular that I predicted them with confidence. I well remember astonishing thus the late Dr James Andrew's father, who was a retired warden, principal, or head-master of Dulwich College, near London. His nephew, who lived with him, Mr Francis Innes, one of my clinical clerks at the fever-house, caught fever in the form of synocha. It put on characters of great violence, so that the old gentleman, who was rather curious in physic for a non-medical man, was very much alarmed.

In the first place, I quieted his fears by assuring him that his nephew would recover. On the fourth day I bled my patient, and promised his uncle that the fever would pass off before a certain hour next day by sweating. So it fell out. Now, said I, feed him up, but gradually, for towards the close of a day which I named (the fourteenth), the fever will return, and it cannot be prevented. So it did return just as the appointed day was drawing to a close. Dr Andrew (LL.D.) was again much alarmed by the great violence of the symptoms; but I quieted him with the assurance that, though my patient would have much suffering to undergo for three days more, he would then again perspire, and be quit of his enemy for good. Every act of this fever-drama, and the very time of each, so tallied with the prediction, that Dr Andrew seemed almost inclined to regard the whole illness as a performance got up to my order.

I may here add, though out of order in date, another instance of similar security of prediction in unusual circumstances. The recurring form of synocha reappeared in Edinburgh after an absence of fourteen years in 1842-44. At the outset of this epidemic I had no charge of it; I was not aware that the recurring form of fever had again shown itself; and indeed for some time the Infirmary physicians on service did not recognise it, but mistook it for a new disease. At this time Dr Bennett was seized with fever, and had it severely. Having been laid up myself with an illness, I did not see him till he was convalescing. When he had given me a history of his case, I at once

told him that he had sustained an attack of my old friend the synocha of 1817-19 and 1827-28, and that he must be prepared for a return of it before the close of the fourteenth day. He replied with an incredulous smile, "There is no time to be lost by it then! It is now three o'clock in the afternoon, and the fourteenth day will end in five hours, for I was taken ill quite abruptly at eight in the evening exactly this day fortnight." I went straight home, a distance of one mile; and next day I learnt that I could scarcely have reached my door before he was attacked with violent rigors, which were followed by the usual three days of violent fever, and then by crisis with profuse sweating. The students, who have a trick of eliciting a joke out of any remarkable incident, insisted that I had practised on his self-suggestion, on the influence of which, in causing and curing diseases, Dr Bennett had several times been learnedly discoursing at this period.

I produced succinctly the chief results of my experience of the two epidemics of 1818-19 and 1827-28, in the article on fever which I contributed to Dr Tweedie's 'Library of Medicine,' published in 1840. When the epidemic of 1842-44 broke out, Sir John Rose Cormack, then ordinary physician of the Infirmary, wrote a very excellent account of it. When about half his book was in proof, he discovered that all his main facts and deductions had appeared in the article in question. They were indeed familiar to all intelligent Edinburgh physicians of my own standing or older. That did not detract from the merits

of Cormack's book. Every great epidemic ought to have its historian, and Cormack has given a graphic description of the epidemic fever of 1842-44.

Several good works treating specially of fever also appeared subsequently in London on the disease breaking out there. I can find in those which deal with inflammatory fever scarcely novelty enough to require a full volume for its enunciation. The London epidemic deserved indeed to be fully recorded. But its historians might with justice have been more careful in recording wherein their observations and conclusions were new, and wherein the disease merely repeated itself as described in prior records. An attempt, which appears likely to prove successful, has been made in London to give that form of fever the charm of novelty by giving it the new name of relapsing fever. But the disease was far from being new. Nor is the name true. The return on the fourteenth day is no more a relapse than the second or any subsequent fit of ague. It is an essential part of most first attacks—a recurrence, not a true relapse. Nor is it absolutely invariable even in first attacks; whilst in second attacks it occurs seldom, and in third attacks never.

During my Infirmary service in 1827 I first became practically acquainted with intermittent fever. In an address to the Social Science Association in 1863, I mentioned that ague had entirely disappeared from Scotland, where, however, it had been extremely common in many districts no longer ago than the last

quarter of the late century. My first Infirmary case was a rather remarkable illustration.

A fine-looking Roxburghshire man, of about twenty-five, was sent for cure from Kelso. He had caught tertian ague while working as a reaper at the harvest in the Fens of Lincolnshire, and went home to his own county to get cured. But his Kelso doctor had never treated or seen a case of ague. The records of a long-established dispensary in the town proved that, about 1780, from 70 to 160 cases of ague were annually treated by its physicians, but that not a single case appeared in the dispensary books after 1806. The Kelso physician accordingly sent the man on to Edinburgh. There was no difficulty in recognising his disease, for I saw him at noon in a violent fit of rigor, waiting for admission among the other applicants of the day. I allowed him nevertheless to take another fit, because such cases as his sometimes get well without other treatment than the rest and comforts of a hospital. He then got eighteen grains of sulphate of quinia before the subsequent fit that was due. But he had no other paroxysm, and in a few days more he returned home well.

I have had occasion to treat some fifteen or sixteen cases of ague from Lincolnshire, Cambridgeshire, the West Indies, or India. In two, the first fit after administration of quinia was only much mitigated, but there was no recurrence after a second set of doses. In all the others there was no fit at all after the first set of doses was given. I always allowed the

men to take at least one fit after admission before quinia was prescribed.

In the autumn of 1828 I made acquaintance with epidemic dysentery, and I am thankful that I have never met with it again. Edinburgh is not liable to suffer much from bowel-complaints, and seems especially exempt in general from the severe forms of dysentery. But medical men had observed for two or three years that bowel-complaints were getting more frequent than usual, both as originating in the homes of the poor, and even as arising among the sick in the wards of the Infirmary. In 1828 dysentery broke out with violence in Glasgow; and though less severe in Edinburgh, it also prevailed there to a very unusual extent. As it is for the most part a painful and incapacitating malady from the very beginning, workmen commonly fly at once to the physician for relief; and as remedies are very efficacious when made use of in good time, many cases get well at home. It is chiefly when dysentery is violent from the first, or becomes so through neglect or unsuccessful treatment, that recourse is had to a hospital by the working classes. Hence the occurrence of eighty cases of dysentery in the Royal Infirmary during August, September, October, and November 1828, gives no adequate idea of the extent to which the disease had prevailed in the town.

By far the greater number of these cases were uncommonly severe. About a fourth part died, two of them only two days after admission, and several

others on the tenth or eleventh day after seizure. Not a few presented the characters of the worst camp dysenteries in the records of military service. Some of the cases originated in the hospital itself, among surgical as well as medical patients; and these, occurring invariably in worn-out frames, were always violent, and too generally fatal. It was for the most part impossible to trace an exciting cause. What might have been the predisposing cause was equally mysterious. There was a *constitutio epidemica*, causing a proneness to dysentery. But that is no more than another, and theoretical, name for the proneness. Its existence, however, was shown not merely by the frequent occurrence of dysentery and acute diarrhœa as idiopathic diseases, but likewise by their unusual frequency of intercurrence during other diseases, and especially by their concurrence with fever. Sometimes the dysenteric symptoms, beginning in the middle of the fever, ceased with the fever or before it. More generally they went on after the fever ceased, and might then prove, or not prove, fatal. More rarely they did not occur till convalescence had begun. The dissections which I myself witnessed presented the usual effects of dysentery. The morbid appearances were confined to the great intestine, and did not extend above the ileo-cœcal valve. But in other cases my colleagues occasionally recognised the characters—described for the first time in England by Dr Bright in his 'Hospital Reports,' published in the previous year—of enteric fever. Enteric fever, entero-mesenteric fever, dothinenteritis, typhoid fever,

as it has been variously called, was probably met with in Edinburgh for the first time at this period. At all events, it was first recognised then. But for many years afterwards it occurred very rarely in Infirmary practice, and only in detached solitary cases at considerable intervals of time.

The treatment I followed for the epidemic dysentery of 1828 was most effectual when it could be employed in time for fair play. I trusted simply to the administration of opium—in full doses, and in quick succession, till the diarrhœa ceased. I never gave an adult less than two grains at a time—often I gave three; and in urgent cases these doses were repeated so often that 18, 24, even 30 grains were taken in one way or another in twenty-four hours. Sometimes complete relief was obtained from the second or even the first dose. Narcotic symptoms were of course carefully watched for, but never occurred before diarrhœa was arrested; and when they did occur, they were easily controlled. I also learnt to be cautious in the use of aperients after stoppage of the diarrhœa, though they had been advised as an alternating measure with opiates in all writings subsequent to Sydenham's recommendation to that effect. Cullen's clause in the definition in his 'Nosologia,'—"retentis plerumque fæcibus alvinis,"—which must have had great influence in keeping up the use of aperients,—was shown in this epidemic to be a mistake. After a few discharges, scarcely anything came off during life; and nothing was found in any instance after death in the acute stage except

bloody mucus, blood itself, or pus—scybalous fæces never. But another misleading circumstance is that, after a smart dysentery, or even an acute diarrhœa, there is often for several days a sense of uneasy, slightly painful weight or pressure in the lower pelvic region, very apt to give the patient the impression of an accumulation there, though it really depends on nothing else than tenderness of the intestine after great irritation. This uneasiness, consequently, is made worse by aperients. After four days of blockade from opium, the ordinary function returns naturally. If not, it may then be aided; sooner is unnecessary, and may be unsafe. The treatment of the chronic stage of dysentery was much more tedious, and more precarious. Acetate of lead, with opium, proved very serviceable in my hands. Dr Spens was successful with decoction and extract of logwood; and in subsequent times I found both the one and the other to be trustworthy remedies. Of about forty cases of dysentery in the epidemic of 1828 I lost only three—all of which were unpromising cases from the first of my charge of them. A short account of this epidemic and its treatment was published in the 'Edinburgh Medical and Surgical Journal' for January 1829.

Since 1828 I have seen extremely little of dysentery, and always found both it and acute diarrhœa effectually checked, when taken in time, by one or two full doses of opium or hydrochlorate of morphia. One unfortunate case, however, I shall never forget, the whole circumstances being remarkable. A gentleman of fifty, a member of an opulent family of our

citizen mercantile men, and greatly esteemed by a multitude of friends, was seized violently with this disease. By ill luck he came under the medical charge of the homœopathic Dr ——, who treated him with drops of nothingness, powder of nonentity, and *extractum nihili*. Matters became swiftly worse and worse; he was pronounced to be in extreme danger; and at last a knot of his attached friends came to the resolution that they ought to interfere with further homœopathic proceedings. A wealthy retired tradesman and ex-bailie undertook the delicate mission, and discharged it without any delicacy at all. After some controversy with the patient's distracted wife, who was herself anxious to have more advice, but hesitated through tenderness for ——, he wound up his appeal by exclaiming, "Mrs ——, if you do not call in a proper physician immediately, you will be your husband's murderess!" So he was authorised to fetch me at once, and homœopathy got its *congé* —but far too late. I went to the sufferer without a moment's delay, and beheld the most deplorable, the most fearful, dysentery which I ever witnessed. It is sufficient to say, that already, on I think the fifth, certainly a very early, day of the attack, there was an almost continual intestinal hemorrhage, and every other forerunner of swiftly impending death. I saw the gentleman late in the afternoon, and he expired early the same evening.

Very soon after the publication of Dr Bright's 'Hospital Reports' in 1827, my attention was riveted

on that portion of the work which announced his great discovery of the relation between dropsy and a previously unknown organic disease of the kidneys. I had written an analysis of that investigation for the 'Medical and Surgical Journal' for July 1828; and at the same time I began to observe cases of the disease under my charge in the hospital. The great revolution in the views of the medical profession respecting the pathology of dropsy, occasioned by the discoveries of Bright, was the probable cause of the coldness with which they were at first received by his brethren. It was said that such cases as he described had been seen only in Guy's Hospital, and in the scum alone of the London population. The first confirmation of Bright's propositions proceeded from a paper published by me in the 'Edinburgh Medical and Surgical Journal' for October 1829. The same incredulity attended at first my announcement of Bright's disease being prevalent in Edinburgh. It was thought to occur in Infirmary practice alone, and only among the labouring community. In a law action as to the nullity of a deed on the ground of its having been executed on deathbed, two physicians, one of them a lecturer on the practice of physic, had the audacity to swear in court that the testator could not have died of Bright's disease, as the chief witness for the prosecution suggested, because that disease was unknown in the middle ranks of life. About this time, however, I was consulted in my first case in point, that of an army officer; Dr Abercrombie very early saw the truth in his extensive practice; and by-and-by

Bright's disease was recognised in all stations of life, by all medical men, and only in too great abundance.

The substance of my paper went avowedly no farther than to confirm, on a new field of observation, the main features and many details of Bright's admirable inquiry. The only novelty of any consequence was a complete demonstration by chemical analysis of the occasional presence of urea in the blood — a fact which some experiments supplied to Bright by Dr Bostock had obscurely indicated, and which seemed to be observable whenever the daily discharge of urea by the kidneys was materially defective. Another point of some consequence was an indication, fully established afterwards, that the disease is not the deadly, incurable malady pointed at by the experience of its first observer, but that it might be much mitigated, arrested in its progress, or even cured.

Bright's disease proved to be so common in all ranks of society, that I had soon very ample opportunities for further observation; and consequently my materials relative to this subject accumulated, and appeared valuable enough to be produced in a separate work, which appeared in 1839 under the title of a treatise 'On Granular Degeneration of the Kidneys.' In this work the frequency of the disease was fully substantiated. It was shown to occur both in the slow, and often insidious, chronic form, long unannounced by any symptom except albuminous urine, and in many intermediate cases between such shapes and the swift acute form, which puts on the char-

acters of an inflammatory disease. It is worthy of remark, however, that the acute form, common enough for many years, has been comparatively seldom observed for a considerable time past, unless after scarlatina. The treatise further indicated that probably under the general and vague name of Bright's disease were comprehended more than one organic disease of the kidneys—a conjecture which was soon after substantiated, in the first instance by Professor Gluge of Brussels, and immediately afterwards, and independently, by Dr Johnson of Guy's Hospital. It was also shown that dropsy is not a necessary accompaniment, and that in some cases the disease goes on to a fatal termination without dropsical effusion anywhere from first to last. Evidence was adduced of the curability of both the acute and chronic forms of the disease; and in submitting a system of treatment, stress was laid on the utility and necessity in many cases of removing dropsy by diuretics, the use of which several authorities in England, reasoning from an unsound theoretical objection to stimulating the kidneys, had rather strongly condemned — as indeed they seem even still disposed to do. There is also contained in the book an abstract of many analyses, showing that the kidney secretion, though generally reduced in volume, is not infrequently much increased in quantity; that it is in that case very low in density; that the solids secreted daily are always reduced; that albumen is most abundant in acute cases, may be scanty in the chronic forms, and is not vicarious of defective urea; that urea may be always found

abundantly in the blood when it is materially defective in the urine, and infers great danger when it abounds; that the disease quickly exhausts the blood-globules, so that in advanced cases this important part of the blood may be reduced even to a third of the natural amount; that the albumen of the serum is also reduced, but not so much as the red globules; and that it is sooner than they restored in part, even though the event may prove to be unfavourable. These observations on the state of the blood were subsequently repeated and confirmed in an able investigation by Andral and Gavarrey at Paris.

It is odd that English writers in more recent times seem disposed to prefer quoting the French inquiry for facts, which, with scarcely any exception, were previously established in my investigation. A professor is doomed to see his oral precepts occasionally appear first in print under the authority of others, and he can scarcely reclaim them. But when he does publish, he may reasonably expect that what he enunciates shall not be assigned to others who merely repeat and confirm his observations. A refinement on this loose and careless procedure is when an author himself repeats the *ipsissima facta* of a prior inquiry, and quotes his own facts only as authority for his conclusions, of which trick in authorcraft I could quote an instance, were I maliciously inclined.

Twelve years after the publication of my treatise on Bright's disease, I recurred to the subject on the occasion of a number of interesting cases accidentally

accumulating in my Infirmary wards and in private practice. Taking advantage of the opportunity, I delivered to my clinical students in March 1851 two lectures, which appeared afterwards in the 'Journal of Medical Science' for the following June. A summary is there given of all that was known down to that date of the symptomatology, pathology, and treatment, deduced especially from the investigations of Gluge and Johnson, as well as from my own ulterior experience; and I was able to illustrate many of these deductions by reference to cases actually under the students' eyes. There may be found apt confirmation, from description and faithful drawings by my then clinical assistant, Dr Sanders, that the microscopic characters of the two forms of disease —stearosis and desquamative inflammation—when seen distinctly in the sediment of the urine during life, may be likewise seen as distinctly in the same cases in the uriniferous tubes themselves, examined after death. Among other proofs of curability, there is a remarkable instance of complete cure twice accomplished in the same subject in the course of twelve years.

CHAPTER XXI.

SOME CHEMICAL INQUIRIES.

HYA-HYA TREE JUICE — WHEY-LIKE AND MILKY SERUM OF THE BLOOD — EXPERIMENTS ON THE ACTION OF AIR ON BLOOD — GURJUN OIL — INDIAN CAOUTCHOUC — PERSIAN NAPHTHA — RANGOON PETROLEUM — FORESTALLED BY A FEW MONTHS ONLY IN THE DISCOVERY OF PARAFFIN — DR SIMPSON AND PARAFFIN-OIL — THE TORBANEHILL MINERAL — AN EVENTFUL JURY TRIAL — "STICK TO THAT" — ANOTHER GREAT LAWSUIT — DEEP INTEREST IN THE QUESTION — CONCLUSIONS AS TO YOUNG'S PARAFFIN-OIL — THE LAW OF PATENTS.

In April 1831 Dr William Gregory published in the 'Edinburgh Medical and Surgical Journal' his valuable discovery of the preparation of hydrochlorate of morphia without the use of alcohol or any other solvent than water. Morphia, till then used in the form of acetate, had made little progress in Britain, because too expensive, and probably also by no means always pure. But Gregory's process supplied a soporific dose of morphia at no greater cost than the equivalent dose of laudanum, and in a state of great purity. Much interested in this discovery on various accounts, I made a number of trials of the new salt,

and communicated the results to Dr Gregory, who published them in his paper. The conclusions I came to were, that the hydrochlorate of morphia is quite equal to opium and laudanum for inducing prompt, sure, placid sleep; that it is as cheap as laudanum; that it is comparatively free from all the objectionable after-effects of galenical opiates except constipation of the bowels; that it interferes in particular much less with appetite and digestion in the morning after its soporific action is over; and that, when taken habitually for some time, it does not require to be so quickly increased in dose in order to obtain the full effect produced at first. At the time of publication I had not had an opportunity of trying its action in the case of any one liable to suffer the disagreeable operation of opiates. But I soon afterwards found that in general it has a very great advantage in such cases over all ordinary opiates, and is often free from any injurious effects whatever. Numberless galenical nostrums for the same purpose have since come successively into fashion, such as Battley's solution, chlorodyne, nepenthe, &c. But in my own observation they are all inferior to hydrochlorate of morphia, which, as it soon displaced the previously favourite nostrum, the black drop, is destined also to see all its successors disappear in time.

It is now the time to notice also some chemical inquiries which I carried on during the period when I held the office of ordinary physician of the Infirmary between 1827 and 1832.

At Professor Jameson's request I examined in 1830 the juice obtained by incision into the trunk of the Hya-hya tree (*Tabernæmontana utilis*) of Demerara, sent to him as a variety of vegetable milk, in use as a substitute for the milk of the cow. Lindley, in his 'Vegetable Kingdom,' says the Hya-hya is one of the tropical cow-trees which produce a sweet juice like thick milk. If that apocynaceous species really produces a nutritive juice analogous to that of the South American Palo di vaca, the *Galactodendron* (or *Brosimum*) *utile*, Jameson's correspondent must have made a mistake, for the substance put into my hands did not contain any nutritive principle. Nevertheless its composition, being peculiar, was not without interest. The material for analysis consisted of a little watery, acidulous fluid, and a much larger proportion of a white concrete honeycombed matter. This solid substance was found to contain about four per cent of a principle identical in every respect with caoutchouc, the remainder being a different principle possessing the properties in part of caoutchouc, of wax, and of resin. From these and other characters it evidently belonged to the carboniferous vegetable principles incapable of undergoing digestion, and consequently of supplying nutriment to the animal body. — (Edin. New Phil. Journal, July 1830, ix. 31.)

About the same time I analysed for Mr Liston a recto-vesical calculus, which had protruded both into the bladder and the adjoining gut. I was surprised to find that this calculus corresponded in composition, not so much with any variety of urinary calculus, as

with the singular intestinal calculi described by Dr Monro. That is, it consisted in part indeed of urate of ammonia, but mainly of earthy phosphates, binding animal matter, and the bristles which lie under the husk in the hilum of oats, which are apt to remain mixed with oatmeal when it leaves the mill.

In 1830 I settled the nature of the whey-like and milky appearances of the serum of the blood sometimes observed in unascertained states of disease. I showed that blood in its healthy state contains a minute quantity of fat; that this is redundant in serum, which resembles whey; that, when serum is so white and opaque as to be like milk, this appearance is owing simply to the presence of from three to five per cent of fatty matter, and its composition was shown to correspond with what had been assigned by M. Chevreul to human fat. — (Edin. Med. and Surg. Journal, 1830.)

Dr John Davy had stated in print that, according to his experiments, venous blood under exposure to atmospheric air out of the body becomes florid, without either absorbing oxygen or giving off carbonic acid, as in the vital phenomena of respiration,—thereby throwing doubts on the accredited theory, which regards the evolution of the latter and absorption of the former in the act of breathing as merely a chemical, and not a vital, change. I found, however, that Davy had committed an oversight by confining his attention to the changes produced on a comparatively large volume of air by the oxygenation

of little more than the surface of a small venous clot —changes too limited to be easily recognised, and still less capable of being measured with confidence. But when a bottle, containing a few angular shreds of lead, was filled quite full of venous blood direct from a vein, and then shaken while coagulating, so that the fibrin was detached upon the lead, I found that the fluid mixture of serum and red globules, agitated in a moderate quantity of atmospheric air in an accurately closed vessel till it acquired the bright arterial hue, absorbed a very sensible amount of oxygen; and although the carbonic acid evolved was not nearly equal to the oxygen gas which had disappeared, this was easily accounted for by the solvent power of serum over carbonic acid.

The observations made on this subject, on milky serum, and on the state of the blood in Bright's disease, made me resolve to study somewhat systematically the changes produced in the blood by disease. But my translation in 1832 to the chair of Materia Medica turned all my chemical work into a different channel.

During the period between 1827 and 1832 I made a rather curious observation, which has been repeatedly made by others since, but has not yet led, so far as I am aware, to any pathological deduction. Twice in the fluid withdrawn from the sac of hydrocele in the surgical wards of the Royal Infirmary were seen in abundance minute glistening crystalline scales, which proved to be cholesterine. The same substance I found in great abundance in a very extraordinary

case in Dr Home's clinical ward—that of a man who died with one of the kidneys converted into a large sac of fluid, contained in a thin, dense, uniform osseous shell. The liquid absolutely shone with glistening pearly scales of pure cholesterine.

In 1831 I narrowly escaped becoming a discoverer. When Sir David Brewster was secretary of the Royal Society of Edinburgh, the late Mr George Swinton, while secretary to Government at Calcutta, sent to the Society several novel natural productions, which seemed to him to deserve investigation. Sir David, probably seeing no source of optical interest in any of them, consigned them all to repose in a dark closet. His successor in office, Sir John Robison, a great lover of order, discovered them in a general "redding-up" of the Society's premises; and being interested in every product of India, where he had spent most of his early life as a civil engineer in the Nizam's service, asked me to look at them. I singled out Gurjun oil, Indian caoutchouc, Persian naphtha, and Rangoon petroleum.

Gurjun oil, obtained by incision from the trunk of several species of Dipterocarpus, lofty trees flourishing particularly in Burmah, proved to be a very liquid turpentine, composed of about 6 per cent of resin and 94 per cent of volatile oil, and possessing sensible properties not unlike those of copaiva balsam, for which Sir William O'Shaughnessey afterwards ascertained that it could be usefully substituted in medicine.

Indian caoutchouc, the produce of *Ficus elastica*,

I found to possess, though in an inferior degree, the properties of the caoutchouc of commerce from tropical America, and, among these, ready solubility in ether and coal-tar naphtha. But it is much less elastic, and cannot be recovered from its naphthous or ethereal solutions either with its original elasticity or free from stickiness. Hence it cannot be used for most of the useful purposes to which American caoutchouc is applied.

The Persian naphtha, at that time rare in Europe, but sent by Mr Swinton in large quantity, I expected to prove a valuable acquisition. It turned out, however, to be nothing else than very good oil-of-turpentine. Mr Swinton would at first scarcely credit my report, and assigned excellent reasons why deception could not have been practised. He was even inclined to go in with an extraordinary theory suggested by the speculative Dr William Gregory, that the naphtha had in time acquired some of the sensible properties of oil-of-turpentine. For my part, I preferred the theory of imposition in India; and when Mr Swinton and Dr Gregory came to examine the dubious commodity for themselves, they confessed they could make nothing of it except that it was genuine primary oil-of-turpentine.

Rangoon petroleum, obtained abundantly from deep pits in the sandy banks of the Irawaddy, proved to be an article of much greater interest. It is of the consistence of lard at all ordinary temperatures of this climate, but becomes quite liquid about 90° Fahr. I obtained from it by distillation, first a naphthous

fluid, which Gregory afterwards found to present a great resemblance to native naphtha—and then a crystalline body, which I naturally took at first for naphthaline produced by distilling coal-tar. But on ascertaining that its properties are totally different, I saw I had got a new principle, and called it "petroline."—(Trans. Roy. Soc. of Edin., xiii. 1.)

My paper on the subject was read to the Royal Society of Edinburgh in February 1831. But on the morning of the very same day I saw, from a new number of Liebig's 'Annalen der Pharmacie,' that the same principle had been obtained during the previous year by the insatiable discoverer Reichenbach, who had called it "paraffin" on account of the few affinities it possesses with other bodies (*παρὰ, affinis*). So I missed being the discoverer of paraffin by a few months only.

My inquiry into this subject brought me subsequently in contact with several novel and interesting commercial enterprises and schemes more or less connected with it. On the first occasion, the subject was Rangoon petroleum itself. Sir James, at that time Dr Simpson, came to me one morning with great confidence in a new scheme. Paraffin-oil, he said, had been found the best of all anti-friction lubricants for the finer kinds of large machinery, but is too costly. It had occurred to him that Rangoon petroleum might do equally well. If I had any left, he proposed to make trial of it with an instrument at the engineering works of Morton in Leith Walk. Should the trial turn out favourably, his desire was

to take out a patent for the invention. But he was told he could scarcely do so safely without my concurrence, which he hoped to obtain. I replied that there was plenty of petroleum for the trial; that there seemed no reason why I should possess any control over such a patent; that, at any rate, he was most welcome to my silence and consent, as I had long ago resolved never to have any concern in patents; but that when he should make £100,000 by his patent, he might probably present me with the last thousand in payment of the first specimen of "Simpson's Incomparable Anti-friction Lubricant"!

Simpson was at this period in the full swing of his marvellous practice. When I called for him, his two reception-rooms were, as usual, full of patients, more were seated in the lobby, female faces stared from all the windows in vacant expectancy, and a lady was ringing the door-bell. But the doctor brushed through the crowd to join me, and left them all kicking their heels at their leisure for the next two hours. We found that the instrument, which marked 100 when arrested by friction without any lubricant, indicated 38 with olive-oil, 18 with sperm-oil, the usual lubricant then employed, and only 6 with my petroleum. So here was apparently a discovery to make a fortune with.

Simpson wrote to a London solicitor to take out a caveat for him. The solicitor, however, ascertained at the Patent Office that a patent had been already obtained for the very thing. He consoled himself

with the reflection that the patent, after all, was probably not worth a single farthing.

The next occasion was an eventful jury trial relative to the lease of the Torbanehill mineral, which at the time of the trial supplied Mr James Young with the material for manufacturing his famous paraffin-oil and paraffin-candles. A Falkirk solicitor, Mr Russell, who was said to be making a fortune by working the minerals on the property of Boghall, took, for an insignificant "lordship," a lease of the coal and limestone (only) on the conterminous estate of Torbanehill. It was well known that there existed on that property an inferior coal, too abundant in iron pyrites for ordinary use, and this was ostensibly the coal in the eye of the tenant. But I had no doubt as he had been working in the Boghall mine the far more profitable mineral which was enriching him, and as he was an extremely shrewd, well-informed man, that he had a very tolerable notion that the same bed extended into the Torbanehill property. The owner of that estate had assuredly no suspicion of that fact. Russell found the valuable mineral at no great depth under the poor splint-coal, immediately began to raise it in large quantity, and sold it at 18s. a-ton at the pit-mouth as coal. The owner of the land, on learning this result, challenged his tenant for appropriating his argillaceous bitumen, which had not been let with the coal and limestone. The parties consequently got into the Court of Session, and there ensued a most costly lawsuit, ending in the verdict of a jury in favour of the lessee. A

new trial, however, was applied for, and rather than run the risk of an adverse verdict, Russell compromised the question by consenting to treble the original petty lordship of sixpence a-ton. He was well able to allow that small concession, for the price of the mineral ran up rapidly to 36s., and at one time to 50s.; and at the time of the first trial it was estimated that what remained to be worked amounted to 1,400,000 tons.

Chemists, mineralogists, and engineers innumerable, and from all parts of the kingdom, swore against one another at the trial, mainly to settle the question, which nevertheless was not decided, whether the precious stone was cannel-coal or bituminous shale. The landowner had been advised to consult me on this point, and one morning he introduced himself for the purpose immediately after my college lecture. He was a plain, simple-hearted gentleman, about sixty years of age, more given to study abstruse questions in ethical philosophy than to looking after his estate, and in his manner shy and somewhat embarrassed. The following conversation took place: "Doctor, my name is Gillespie—Mr Gillespie of Torbanehill. I am in the Court, and my counsel tell me I must have a report from you." "Well, Mr Gillespie, I must first know what it is about." "Ah, I am told that, as the party interested, I had better say nothing about that. But see your colleague, Dr Wilson; he knows all, and can tell you everything." "Very good; but before I can go even so far, I must have some general idea of the nature of the question

on which I am desired to report." "Then, doctor, I may tell you this much. A mineral has been discovered on my estate worth all the gold in California, and another man is fast appropriating it, though it is my property." "I should not have expected, Mr Gillespie, to find gold in the Bathgate district." "No, not exactly gold. But I can assure you this person is making plenty of gold with my mineral; and here it is." At the same time he pulled out of his pocket a hand specimen, presented it to me, and retired again to his previous rather distant position. On examining it attentively, I said, "Why, Mr Gillespie, in the days when I was a mineralogist I should have called this bituminous shale." Thereupon, with two or three long strides, he came up to me, patted me on the shoulder, and exclaimed, "Doctor, stick to that! I need say no more; stick to that! See Dr George Wilson at once. But stick to that, doctor —stick to that!"

I had given up for some years being a scientific witness on such occasions as this; and as I saw I could not give evidence in Mr Gillespie's case without an elaborate chemical investigation, for which my professional pursuits allowed me no leisure, I declined being engaged by him. I studied the subject, however, with some care, and, as the result, my opinion was, and still is, that the Torbanehill mineral stands so exactly on the boundary-line between a shale and a coal, that both sets of witnesses might conscientiously think themselves in the right. It is not unworthy of remark on that point, that, when I showed

a specimen to Professor Jameson, then frail in body but in full vigour of mind, he, after careful examination with his lens and knife, at once pronounced the mineral to be a shale, and not a coal.

The Court directed the jury to put out of view the scientific question as to the nature of the Torbanehill mineral, and all the conflicting evidence on that subject, and to decide according as they should think that the two parties severally knew, or did not know, what it was that was bought and sold. If that was a sound direction—and it is not easy to see what else the Court could rule in the circumstances—then, in my opinion, the verdict was against the evidence. The pitiful lordship of sixpence was proof enough that Mr Gillespie had no idea whatever that he was disposing of so valuable a mineral. But Mr Russell had sufficient information to bear out the strongest presumption at least, that what he had been working at Boghall would also be found at Torbanehill.

My next encounter with paraffin was not long before another even more expensive lawsuit, costing, it was said, £14,000 to both parties together, in defence of Young's paraffin-oil patent. Almost every chemist of any note in Britain was engaged on one side or the other of the question. Mr Binney, a chemical manufacturer in Manchester, who had purchased from Young the right to use his patent, and was consequently an interested party along with him in resisting an alleged violation of it, called on me in June 1860 with much new information on the subject, and proposed that I should be a witness, adding that,

the interests at stake being very great in amount, I had only to mention my own terms (!). I replied that I never had embarked as a witness in any law trial in that way; that I must first study the question in order to see whether or not I could conscientiously take it up; that I had long ceased, however, to undertake such work, because it interfered too much with my proper professional duties; that I took a very deep interest, nevertheless, in the question between Mr Young and his opponents, and therefore that I would gladly look into the matter and report my opinion—but "without fee or reward." Mr Binney seemed rather surprised by this unusual reception of a tempting invitation; but he left his documents with me.

On adding to my previous knowledge the information thus communicated, I saw,—1. That Young was not the discoverer of paraffin or paraffin-oil; 2. Nor of their being obtainable from coal or shale; 3. Nor of their fitness for giving light; 4. Nor of the nice adjustment of the heat for obtaining them—namely, a heat just high enough to effect decomposition, and no higher; 5. That he had not contrived the singular upright retorts, open below under water, to allow constant escape of waste-ash—a construction found to be the most suitable for the manufacture; 6. That he had made no essential addition or other change in the process of purification. I therefore reported that I could see nothing very substantial on which the patent could be rested, unless there were adequate grounds, by the patent law,—1. In Mr Young having

been the first to ascertain from what mineral the paraffin products may be most largely obtained; 2. In his having laid down, more categorically than his precursors, the right temperature for obtaining them; and, 3. In his having been the first to bring paraffin and paraffin-oil into extensive demand, so as to make of them marketable commodities.

I believe the decision of the Court in Young's favour rested mainly on the last of these grounds—viz., on his having been the first to make the paraffin products marketable.

If this be really a part of the Patent Law, as I am given to understand that it is, is it sound law? Is it consistent with reason and justice? Is it just and reasonable that no other man shall make profit in the same way—that is, by piecing together the *disjecta membra* of other people's discoveries, and thus bringing into common use a substance well known to science? As expounded in various decisions by the Bench in England, as well as in Scotland, the Patent Law is to me, and indeed to most people, a profound mystery. According to my understanding of it, a patent is valid for new machinery, or a new chemical process, for making a useful substance previously known or new; and it is also valid for a combination of known machinery, or known chemical processes, by means of which combination a substance previously known as an article of scientific curiosity only becomes a useful, profitable—that is, marketable—commodity; but the discovery of a new substance, however useful, cannot be patented. When, for ex-

ample, Sertürner discovered morphia and its salts, or when Pelletier and Caventou discovered quinia and its compounds, they could not have patented these most valuable chemical discoveries. A valid patent might have been got for their process, and to cover any other process which could at the time be devised. But of what use would be such a patent, since to a certainty there would be soon found out a different process, probably simpler, more productive, and therefore cheaper? Or, suppose it were discovered that iron is not a simple element, but an alloy mainly of a metal previously unknown—which we may call chalybs—possessing all the inestimable properties of iron, but also, in addition, the only valuable property almost which it has not—the indestructibility of gold under exposure to air, water, and most acids,—the discoverer could not have a valid patent for this discovery. He might patent machinery for making chalybs, or a process for producing it, but not chalybs itself. But beyond question its discovery, both scientifically and in the main practically too, is by far the most important novelty; and in regard to the patent actually available, it would to a certainty be soon rendered useless by the invention of a new process, or different machinery. Is this reason and justice? Or is it not sheer nonsense?

CHAPTER XXII.

EARLY DAYS IN THE SENATUS ACADEMICUS.

THE PRINCIPAL AND PROFESSORS IN 1822 — PRINCIPAL BAIRD — WILLIAM RITCHIE, D.D. — HUGH MEIKLEJOHN, D.D. — ALEXANDER BRUNTON, D.D. — PLURALISM IN THE SCOTTISH CHURCH — THE FACULTY OF ARTS — LESLIE — PILLANS THE SUCCESSOR OF PROFESSOR ALEXANDER CHRISTISON IN THE LATIN CHAIR — HIS ENTHUSIASM AS A PATRON OF EDUCATION — FAILURE OF HIS POWERS WITH AGE — HIS RESIGNATION CONTRIVED — WALLACE — BABBAGE — "CHRISTOPHER NORTH" — GREAT AGE ATTAINED BY MANY MEMBERS OF SENATUS.

In summarising the foregoing researches, and tracing some of them to their consequences in a desultory way, they have beguiled me far ahead of time in respect of very different matters, less purely relating to self, and more interesting and important in a public point of view. On their account I must now return to the early days of my initiation as member of the Senatus Academicus.

In the beginning of 1822, the Senatus Academicus consisted of only twenty-eight members. There are now thirty-seven. The Principal and three professors constituted the Faculty of Divinity. The Faculty of

Arts consisted of seven professors, that of Law of four, and that of Medicine of six. There were, besides, five medical professors, and two in the division of Arts, who had not been at that time incorporated with any Faculty.

The Principal, as by his commission Primarius Professor of Theology, though he took no part in theological teaching, was the head of the Faculty of Divinity. The office had been held since 1793 by Dr George Husband Baird, and he discharged its duties till his death in 1840, after no less than forty-seven years' service. Raised to this elevation at an unusually early age in the case of such an office,—successor to a man of high literary fame, but presenting in himself no prominence in public estimation as a man of learning, science, or professional distinction,—Baird owed his appointment to the overwhelming influence of Lord Provost Elder.

Elder had in those days good right to exert influence and show favour in Edinburgh. For at that very period he had shown wonderful ability, energy, and independence of character in putting down in the city by his determination mob-law, and by his affability and persuasion seditious movements in circles above that of the mob, during the perilous and critical days of the French Revolution. It was rather a strong exercise of that claim, however, to exert his paramount influence over the electors, his own Town Council, and induce them to appoint his youthful untried son-in-law Principal of the University of Edinburgh in succession to Principal Robert-

son. Nevertheless the appointment turned out not a bad one.

When I recall to my view Principal Baird from my earliest boyhood onwards—for he was my pastor, as one of the ministers of the High Church—I recollect him as always a portly man, of middle stature; of great weight, but of strength suitable for carrying it easily; with a round, plump, benignant countenance; of kindly disposition, conversing ever with a dominant smile on his visage; a good scholar; of polished manners and winning address. Consequently he ruled his subjects in the Senatus on the whole with ability and success, though wanting in determination on some rare occasions of conflict and turmoil at our meetings.

His rule there was so quiet, that no one could well be aware that he had in reserve the magnificent, voluminous, commanding bass voice with which he used to fill the vaulted roof and aisles of St Giles's church in his weekly ministrations. But his taste in using it was faulty; and his composition too often fell into ludicrous bathos for such tones as he called into service. Imagine, for example, the Principal in St Giles's pulpit discoursing on Christian love, and pronouncing, *pleno ore*, that "Love, my Christian brethren, is a compound emotion. But, like all other compound emotions, it has one grand, characteristic, preponderating, predominating ingredient. And this one grand, characteristic, preponderating, predominating ingredient is affection for, or motion towards, an object."

I could furnish from memory several equally apt

specimens of this sort of pulpit eloquence; but I add only one other instance, which I owe to the recollection of my brother John. The Principal had to preach in the High Church a funeral sermon on the death of Lord President Blair of the Court of Session. At the time of the death he was in the neighbourhood of Linlithgow, in attendance at the bedside of his eldest son Tom, a powerful rollicking youth of eighteen, who lay desperately ill, though he eventually recovered, from the effects of a capsize on the hunting-field. In the exordium of the sermon, enunciated in his gravest and grandest tones, the two events were thus mixed up: "I had been watching in the country, my brethren, all day long by the supposed deathbed of a darling boy, when in the evening I went forth unto the fields to meditate. And I looked, and beheld a man coming from afar—who came like one who was the bearer of tidings. And as he approached I saw that his countenance betokened woe. And I said unto him, 'Friend, thy countenance betokeneth woe.' And he answered and said, 'The Lord President Blair is dead.'"

I am ashamed to think that I have a far clearer recollection of these odd passages in his sermons than of the good lessons they inculcated. Let me hope that they nevertheless bore good fruit, though the lessons themselves have been forgotten—in like manner as the husbandman reaps a harvest, though the seed from which it sprang vanishes for ever.

Principal Baird, among my seniors in the Senatus Academicus, was a great friend and favourite of mine.

He was indeed much esteemed in general society in Edinburgh, and highly respected by the members of Senatus. These advantages he owed to kindliness, benignant features, cheerful deportment, deferential manners, conversational power, and a rich fund of anecdote.

Dr William Ritchie, Professor of Divinity from 1809 to 1828, was also our Principal's colleague as one of the ministers of the High Church. He was short in stature, but had a large head and prominent features, also on a large scale, yet finely cut and dignified in expression. In his old age he had in the pulpit the piercing gaze of an eagle; but he was of mild disposition and gentle in manners. His sermons were well composed, and delivered with great earnestness, a persuasive voice, and the remains of an Ayrshire intonation. I do not now recollect what led to his students becoming uproarious at a previous period of his professorship; but insubordination became at last systematic, till a ringleader betrayed himself into some glaring violation of discipline, which brought him as a culprit before the Senatus Academicus. The young divine must, however, have been "a bad one," for he underwent the rare penalty of expulsion from the University—a heavy punishment, which was inflicted once only during my fifty-five years' professorship—for the offence of inveigling a printer, obtaining surreptitiously the questions for an examination, and selling copies of their trial-papers to candidates. The punishment of their fellow-student brought the youth-

ful theologians to their senses, and Ritchie eventually won respect, and even popularity.

Dr Hugh Meiklejohn held the chair of Church History from 1799 to 1831, when he was succeeded by Dr Welsh, subsequently one of the leaders and first Moderator of the Free Church. Meiklejohn was a powerfully made man of six feet four, with a smooth round face that never bore any expression but that of good-humour and contentment. He had no name in general learning or theology. I never heard him preach from the pulpit or lecture from his chair; but his few appearances in the Senatus enabled me to understand that the most remarkable ingredient in his lectures was an extraordinary monotony of delivery, of which a student gave me this illustration: "In the next century of the Christian era Mr Ritchie I am astonished at you an event occurred that deserves our attentive consideration." In order to appreciate the full force of this passage, it must be spoken, and without either pause or modulation of the voice to indicate that the Professor interjected in his narrative an admonition to a tricky student.

Dr Alexander Brunton was appointed in 1813 Professor of Hebrew and Oriental Languages, and continued in office till 1848, when he resigned owing to old age and infirmity. He succeeded Dr Alexander Murray, a brilliant philologist of the purest water, who knew almost all useful languages, could easily master any, and was indeed one of those extraordin-

ary men for whom the great event at the building of Babel seemed scarcely to have existence. But although young, he was withered in frame and constitution,—

> "A fiery soul, that, working out its way,
> Fretted the pigmy body to decay,
> And o'er-informed the tenement of clay;"—

and accordingly died of consumption when he had been scarcely a year in office. He had thus no opportunity of proving whether he could teach. That was doubtful. A recluse, drawn from obscurity, and knowing little or nothing of society, he must have been apt to lose sight of what the majority of his hearers needed, or what most of them could carry away with them from the lecture-room.

Murray's successor was of a very different stamp. It may be doubted whether Dr Brunton stood high in rank as an oriental scholar. If he did, he at all events never gave the world of literature an opportunity of knowing it by his writings. But he was a strong, well-built, portly man, whose countenance was large, flabby, not handsome, but indicative of his being a gentleman and a person of mark. He was courtly in address — in that respect, indeed, somewhat formal both in speech and manner; eminently sociable nevertheless, and esteemed in general society, especially by the ladies, of whom he was also a favourite as their minister. For Dr Brunton was minister of the Tron Church, as well as a University professor. He was a good man and worthy gentleman in all respects. No man more forcibly showed his utter detestation and

uncompromising judgment of wrongful or mean conduct. His taste was refined, in thought, language, and deportment. He was even at one time something of a clerical beau; and as such he stuck, long after the common herd of dandies had discarded them, to the once fashionable, tight, black stocking-piece pantaloons and gaiters, which were a trying costume for human shanks.

Dr Brunton was a double-dyed pluralist. Besides being a city minister and College professor, he was also Upper Librarian of the University. In that capacity he claimed and got the only private house included in the scheme of the then new University buildings. But he did not live always there. During six or seven months of every year he occupied a pleasant villa, which he had built in the country, about six miles from College, on the north bank of a little tributary of the Esk, near Loanhead.

Pluralism was at this period (1822) in the ascendant in the Scottish Church. In Edinburgh, besides the office of Principal and the three professorships in Theology, the chairs of Logic and of Rhetoric were held by clergymen, ministers of the city; and in the other universities of Scotland a similar practice prevailed. I never heard a complaint of this conjunction of offices involving any neglect of parochial duties—not even in the case of Brunton, who was non-resident, though indeed not far off, for half the year. But the case was otherwise at other university seats; and at least one glaring instance to the contrary was said to have created the outcry against the practice, which

gradually enlisted both clergy and laity as its enemies, and which ended at last in the General Assembly of the Church pronouncing pluralities unscriptural, and damaging to the welfare of the Establishment. But a different cause was at the root of discontent. The Scottish Church had been for some time divided into a moderate and a wild party, of which the latter laid claim to greater sanctimony, and deeper devotion to professional vows and duty. The moderates, however, belonged in a great measure to the Tory side of State politics, and the wild party, with few exceptions, to the Whigs. Now the Tories being to all appearance firmly seated at the head of Government, and ruling also in the chief town councils of Scotland, it followed that the moderates alone partook of the good things belonging to university professorships. The opposite party determined to destroy what they could not enjoy. The traditional dog, because it could not have its share in the manger, proceeded to tear it down. They shut their eyes on the lustre which the university prelections of many members of their Church has shed on the Church itself. They shut their eyes to the undeniable fact, that a conspicuous parochial clergyman of their own party, adored by his flock for the faithful discharge of every sacred duty in his parish, was the able editor of a popular controversial journal, besides being practically a successful cultivator of music and improver of psalmody. They shut their eyes to the notoriety with which the most popular physicians, surgeons, and accoucheurs, as well as practising members of the Bar and Writers to the Signet,

had discharged with applause professorial, without prejudice to professional, duties. The baneful element, indeed, of political party was betrayed ere long, when the wheel of fortune brought the Liberals into political power. In defiance of the fiat of the General Assembly, Dr Wallace, minister of the Greyfriars Church, was appointed Professor of Biblical Criticism in the University of Edinburgh; and his predecessor, Dr Robert Lee, held not only both of these offices, but received also from the Crown the appointment of Superintendent of the publication of the Bible for Scotland, under the Act which abolished the old Government Bible monopoly. Nevertheless not a murmur was raised against these pluralities. But Lee was a Whig, and Wallace a Radical. *Hinc* (*nullæ*) *illæ lachrymæ.* To a reasonable plurality Conservative Churchmen never had any objection; their Liberal brethren sank theirs whenever it was a political brother they had to deal with. It is to be hoped, however, that this example of defiant masterly inactivity will not be lost, and that pluralities will be allowed to run again in the old channel, unless where that ends in parochial non-residence. The Church of Scotland has too few bonds of connection with learning and philosophy to be warranted in sacrificing any of them.

In the Faculty of Arts the following changes had occurred since I became a student in that Faculty. The death of Professor Playfair in 1819 had opened the chair of Natural Philosophy to Leslie. The vacancy thus arising in the chair of Mathematics was

filled by Mr William Wallace, from the Military College of Sandhurst. In 1820 John Wilson was elected Professor of Moral Philosophy, in succession to Dr Thomas Brown; and my High School preceptor, Pillans, succeeded my father in the same year as Professor of Latin.

James Pillans was as much in his natural element in his university chair as when he was rector of our great grammar-school. A finished scholar, of wide general culture, and altogether a gentleman, he was able to vary the examination-work of his classes with able weekly lectures on all sorts of interesting allied subjects. No one could fail to appreciate on the one hand his enthusiasm as a classical scholar and earnestness as an instructor, or on the other hand his love for the students, and his desire to benefit and elevate the teaching profession. These qualities, often and prominently applied in practice on public occasions, made him popular and valuable in Edinburgh life during his long incumbency of forty-three years in his professorship. His labours as a patron of education were by no means confined to the University. All branches of it in Edinburgh and in many other parts of Scotland felt his influence more or less. In particular, along with Mr Leonard Horner, he founded the "School of Arts," for the higher instruction of the artisan classes of the city; and continued to foster and advance that excellent institution so long as he lived. Having been much in the best society of all ranks, he was a courteous and most agreeable member of our Senatus, as well as of other

literary and scientific circles. No one shone more at the convivial meetings of the Senatus and of the Royal Society Club, although he was always an abstemious man. We were close friends from first to last; and when boasting, as he often did, of the multitude of his colleagues whom he had taught, I naturally came in for first mention as his eldest pupil.

Pillans lost his wife at an early age, and she left him no children. For such a man, a life of solitude at home is an unfavourable circumstance when age steals on. Hence probably it was, that, on approaching his seventieth year, he fell into hypochondriasis, which at one time reduced his strength of body and mental vigour to an alarming degree. But after a year or two he threw off entirely this usually pertinacious enemy, and became himself again. I was present a good many years afterwards when he good-humouredly admonished Principal Lee, who also was apt to mope sometimes, and dwell upon the infirmities of his advancing years. On this occasion Lee was bewailing the inevitable decadence of poor humanity with age, and became fluent in detailing his experience, and professing resignation under his infirmities. Pillans, however, interrupted him with a warning that, if he thus insisted constantly on getting old, he would soon become old indeed. "A number of years ago," added he, "I gave way to this feeling, and found that I was fast getting very old. But at length I discovered my mistake; and positively, Principal, I feel myself

a younger and younger man every year." "Ay, ay," replied Lee, "is that the case? Then have a care, Professor, not to go on long in the same direction, otherwise you will get into your second childhood!"

In a few years more Principal Lee's joke became a sad reality. From various quarters representations reached the Senatus and University Court that Pillans's class-work had lost its efficiency; that he, however, as too often is the case in the like circumstances, was unaware of the inroad of his great age; and that steps should be taken to save so estimable a man from the inevitable consequences of his blindness. At length, in the spring of 1863, the University found themselves obliged to consider the subject formally. It was resolved that he must be induced to resign his professorship; and, with much reluctance on my part, on me as his oldest friend was imposed the ungracious duty of breaking the ice with him. I accepted the task; but only on condition that I was not to seek an express opportunity, but to wait for a favourable accidental one.

I had not long to wait. Within a fortnight we met at the first Princes Street Garden promenade for the season. Pillans was in great spirits. He asked me how I had got through the late University session, and observed that he had never finished his own work with more satisfaction to himself, or, he believed,—but therein he was much mistaken,—more to the satisfaction of the students. "But," added he, "I have entered upon my eighty-fourth

year, and it will soon be time to think of unyoking the old horse."

I. "Well, Professor, no one is more entitled to rest than you. When you make up your mind to retire from duty, let me know; and I shall make your procedure all smooth with the University Court."

Pillans. "There is the difficulty, however, that I cannot plead infirmity. I am not infirm, but as able for duty as ever."

I. "Oh! but, Professor, you misunderstand. The statute does not require you to plead infirmity. Retirement may be on the ground of 'age or infirmity.'

Pillans. "No! is it so? Are you quite sure?"

I. "Positively. As secretary of the Court, it is my business to know literally the terms of every section of the Universities Act which relates to the powers of the Court; and these are the very words—'age or infirmity.'"

Pillans. "In that case, assuredly I can have no difficulty. But I have observed that when an aged man resigns office, he generally dies soon afterwards."

I. "For that there may be two good reasons. Either he may not resign till his health is utterly broken down; or he has no resources for mental occupation in retirement. You labour under neither of these disqualifications."

Pillans. "No, certainly not. Well, I must take up the question of retirement at once and seriously; and I shall let you know the result."

Within fourteen days more he intimated to me his determination to resign his chair. It is singular

how much more easily than appears possible at first, such delicate transactions take a smooth and pleasant course when undertaken in this conversational way. On a subsequent occasion I had experience of the danger of resorting in similar circumstances to epistolary correspondence. Professor Pillans survived his resignation only nine months; but he was a very aged man, and the cause of death had no connection with any of the consequences of retirement.

William Wallace was a short, muscular, strong, stoutish man, somewhat rugged in frame and countenance, but with the mathematician's broad forehead and wide-set eyes. He had been for some years Mathematical Professor at Sandhurst Military College, when in 1819, at the age of 51, he was appointed Professor of Mathematics in our University, over the heads of other no less able competitors. He was one of the acknowledged mathematicians of Britain; but, so far as I am aware, he never published any remarkable investigation connected with his favourite science. He was an able and popular teacher, and occupied the chair of Mathematics for nineteen years. Towards the close, however, he showed indications of inefficiency, for he lost command of his classes. This was probably owing to the approach of hypochondriasis, which stole on him slowly, and so reduced him at last, that he was compelled to resign his professorship. Nevertheless he recovered bodily activity and mental vigour, survived five years till entering his 76th year, and often lamented his precipitancy in

resigning. Though rough outside, he was a mild, kindly, genial, thorough gentleman in mind and conduct, and much attached to his colleagues, with most of whom, as with myself, he lived on intimate and cordial terms.

One of his competitors for the chair was Charles Babbage, a much younger man, who became soon afterwards highly celebrated. But the patrons of that day were not men of a stamp to appreciate rising genius. I have often wondered what might have been the life of Babbage and the fortunes of our Mathematical chair, had he (at that time only 29) become its occupant. He might at least not have turned out the disappointed, dissatisfied man which his usage in England is said to have made him.

John Wilson, best known as "Christopher North," was the grandest specimen of the human form I have ever seen,—tall, perfectly symmetrical, massive and majestic, yet agile. When his bust was exhibited about the year 1842 at the Royal Academy Exhibition in London, I overheard an evidently noble connoisseur exclaim to a companion—"Look here; this must be Jupiter under some new transformation!" and he aptly described the head and countenance of the bust and the original. In constitution Wilson was no less remarkable than in frame. He told me that he had once gone four continuous days without sleep, and that on the fifth evening he did not feel more necessity for it than

usual. He had been in earlier times a partaker—rumour said a frequent leader—in many a protracted orgie; but no man ever saw John Wilson under alcohol unfit for anything which he could do without it. His prowess as an athlete in his youth is extant still in many tales,—such as his following the Cumberland foxhounds all day on foot; his running-leap at Oxford, which is said to have never been matched; his pugilistic encounter with the butcher-bully of Oxford, who gave in after a brief conflict, exclaiming — "You are either Jack Wilson or the devil!"

He was appointed Professor of Moral Philosophy in the stormy days of 1820, when volunteer regiments were re-embodied for protection of the State against mob-law; when the rebellious taken with arms in their hands were convicted as traitors on the one hand and declared to be martyrs on the other; when Whig and Tory shunned one another in social gatherings; and political frenzy had reached the duelling-point—in one terrible instance fatally. The contest for the chair lay between Sir William Hamilton and Wilson Both were acknowledged men of genius, but that of Sir William was generally allowed to be the more akin of the two to the object of competition. The practical test, however, was the political one. Wilson was a power on the Tory side—Hamilton a comparatively peaceful member of the other party. The political struggle became intense. The Tories, indeed, may claim the credit of having said nothing to disparage Hamilton apart from his Whiggery; but the abuse lavished by the Whigs on Wilson was appalling. The

Town Council, however, patrons of the chair, were by a large majority Tories to the backbone, not to be moved by any contrivances for the overthrow of so cherished a supporter of their party as John Wilson. For this resolution they were not in want of something to say for themselves. Did not the Professor of Moral Philosophy expressly teach Political Economy? Were they to make their University a school of Whiggery?

The chagrin of their opponents at losing the election was made manifest in various ways. A regrettable instance of it was displayed by no less a man than Dugald Stewart. According to the custom of the day, Stewart, on resigning his chair in 1810, retained the empty name of "conjunct Professor," along with his working partner, Dr Thomas Brown. Brown, like himself, was a Whig; but when Stewart found himself tied, even so loosely, with so rampant a Tory as Wilson, he at once formally resigned his nominal office. The tie was a very loose one, which never brought the two into contact except in the University list of the 'Edinburgh Almanac.' It may be feared that the somewhat ostentatious resignation was rather the offspring of feeble spite than the dictate of moral philosophy. But John Wilson had the misfortune not to be one of "All the Talents." Nevertheless I apprehend that, in the history of the Edinburgh chair of Moral Philosophy, the names of Dugald Stewart and John Wilson will be long remembered as *par nobile fratrum*, though in somewhat different spheres; and I feel sure that Wilson on his part would not have considered his philosophy, and still less his politics, to have been dimmed, had his too particular

precursor allowed his name to remain on the University lists as conjunct Professor of Moral Philosophy.

A man of Wilson's known eloquence, wit, commanding presence, and fiery, though rather unpolished, yet natural delivery, could scarcely fail to captivate his hearers, whatsoever might have been the subject of his professorship. Accordingly he was admired by his students during his whole incumbency. I never heard him either lecture or speak at any of the public assemblies, where he used to carry the meeting by storm. In truth I was no frequenter of public meetings or platforms till the creation of the General University Council in 1859 drew me from my University lectures, which had previously been my sole public field. My acquaintance with Wilson was confined to social intercourse and his writings. He never published on any branch of the subject of his chair; and his powerful writings throw little light on his views in the region of philosophy, as that term is now generally understood. His social qualities were of the highest order. His flow of language, his cheerfulness, his wit, and his good-humour therewithal, made him the cynosure of every circle which he frequented.

In the course of giving the foregoing account of the Edinburgh Senatus Academicus, I have been often struck by observing the great age attained by many of its members. This circumstance interested me all the more, because the ordinary schoolmaster race belong to the short-livers of the community. Being engaged about the same time in amending an old inquiry into the longevity and maladies of the

learned professions, I determined to get a clear insight into the longevity of the professoriate as my first step; and, not without difficulty and extensive search, I have obtained the necessary facts in regard to the seventy-eight members of the Senatus who have died since January 1820, as follows:—

Name.	Professorship.	Age at		Survival.	Life Expectation.
		Entry.	Death.		
Alison, William P.[1]	Practice of Physic	30	69	39	33
Aytoun, William E.	Rhetoric	32	52	20	31
Baird, George H.	Principal	32	79	47	31
Ballingall, Sir George	Military Surgery	37	69	32	28
Bell, A. Montgomery	Conveyancing	46	56	10	22
Bell, Sir Charles	Surgery	62	68	6	12
Bell, George Joseph	Scots Law	52	73	21	19
Bennett, John H.	Physiology	36	63	27	29
Bishop, Sir Henry R.[2]	Music	61	75	14	13
Blair, Robert[2]	Astronomy	34	76	42	30
Brewster, Sir David	Principal	77	86	9	6
Brown, Andrew	Rhetoric	36	70	34	29
Brown, Thomas	Moral Philosophy	32	42	10	31
Bruce, John	Logic	30	82	52	33
Brunton, Alexander	Oriental Languages	41	82	41	25
Chalmers, Thomas	Divinity	48	67	19	21
Cheape, Douglas	Civil Law	30	64	34	33
Christison, Alexander	Latin	54	69	15	17
Coventry, Andrew	Agriculture	27	68	41	35
Crawford, Thomas	Divinity	47	63	16	22
Donaldson, John	Music	55	75	20	16
Dunbar, George	Greek	25	71	46	36
Duncan Andrew, 1st	Physiology	46	85	39	22
Duncan, Andrew, 2d[3]	Materia Medica	34	59	25	30
Ferrier, James	Civil History	44	56	12	24
Forbes, James D.[4]	Natural Philosophy	24	59	35	37
Forbes, Edward	Natural History	37	38	1	28
Goodsir, John	Anatomy	32	53	21	31
Graham, Robert[5]	Botany	32	59	27	31
Gregory, James	Practice of Physic	23	68	45	37
Gregory, William[6]	Chemistry	35	54	19	29
Hamilton, James	Midwifery	32	72	40	31
Hamilton, Robert[2]	Public Law	37	72	35	28
Hamilton, Sir Wm.[7]	Logic	33	68	35	31
Henderson, Thomas[2]	Astronomy	36	46	10	29
Henderson, William	Pathology	25	55	30	36

[1] At first Professor of Medical Jurisprudence.

[2] These seven Professors never delivered a course of lectures on the subject of their chairs in the University.

[3] For first fifteen years Professor of Medical Jurisprudence.

[4] Principal of St Andrews for the last nine years.

[5] Professor at Glasgow at first for two years.

[6] Professor at Aberdeen for the first five years.

[7] Professor of Civil History for the first fifteen years.

Name.	Professorship.	Age at Entry.	Age at Death.	Survival.	Life Expectation.
Home, James[8]	Practice of Physic	38	84	46	28
Hope, Thomas C.[9]	Chemistry	24	77	53	37
Hume, David[10]	Scots Law	30	82	52	33
Innes, Cosmo	Civil History	47	75	28	22
Irving, Alexander[11]	Civil Law	33	65	32	31
Jameson, Robert	Natural History	30	80	50	33
Kelland, Philip	Mathematics	29	70	41	33
Laycock, Thomas	Practice of Physic	43	64	21	24
Lee, John[12]	Moral Philosophy	32	79	47	31
Lee, Robert	Biblical Criticism	40	61	21	26
Leslie, Sir John[13]	Natural Philosophy	39	67	28	27
Low, David	Agriculture	45	73	28	23
Macdougall, Patrick	Moral Philosophy	47	61	14	22
Meiklejohn, Hugh	Church History	35	67	32	29
Menzies, Allan	Conveyancing	43	52	9	24
Miller, James	Surgery	34	52	18	22
Moir, George	Rhetoric	35	70	35	29
Monro, Alexander	Anatomy	24	85	61	37
More, John Schank	Scots Law	57	76	19	15
Napier, Macvey	Conveyancing	48	70	22	21
Pierson, Henry Hugh[2]	Music	29	57	28	33
Pillans, James	Latin	42	86	44	25
Ritchie, David	Logic	45	81	36	23
Ritchie, William	Divinity	61	82	21	13
Robertson, James	Church History	41	57	16	26
Ross, George	Scots Law	47	49	2	22
Russell, James	Clinical Surgery	51	84	33	19
Simpson, James Young	Midwifery	28	58	30	34
Skene, George[14]	Civil History	29	67	38	33
Spalding, William[15]	Rhetoric	21	50	19	32
Stewart, Dugald[16]	Moral Philosophy	22	75	53	38
Stevenson, William	Church History	46	58	12	22
Syme, James	Clinical Surgery	33	70	37	31
Thomson, John[17]	Pathology	41	81	40	26
Thomson, John[2]	Music	33	35	2	31
Traill, Thomas Stuart	Medical Jurisprudence	50	80	30	20
Turner, John William	Surgery	41	46	5	26
Tytler, William Fraser[2]	Civil History	24	76	52	37
Wallace, William	Mathematics	51	75	24	19
Welsh, David[18]	Church History	37	51	14	28
Wilson, George	Technology	37	41	4	28
Wilson, John	Moral Philosophy	34	68	34	30
	Total		5182	2200	2119

[8] Professor of Materia Medica for the first twenty-three years.
[9] Professor at Glasgow for the first four years.
[10] During the last sixteen years Baron of Exchequer.
[11] During the last five years Judge of the Court of Session.
[12] Principal for the last nineteen years. Professor at Aberdeen or St Andrews for twelve years before.
[13] Professor of Mathematics at first for fourteen years.
[14] Professor at Glasgow for the last twenty-two years.
[15] Professor at St Andrews for the last fourteen years.
[16] Professor at Aberdeen for the first ten years.
[17] Professor of Military Surgery at first for seventeen years.
[18] Left the University, after thirteen years of professorial life, on the occasion of "The Disruption" in the year 1843.

From the foregoing data it may be calculated—

1. That the seventy-eight members of the Senatus Academicus who have died since 1820 entered on office at the following ages, viz. :—

Not over 25, ...	8
From 25 to 30, ...	10
From 30 to 40, ...	31
From 40 to 50, ...	19
From 50 to 60, ...	6
Above 60, ...	4

2. That the average age attained, one with another, was 66.4 years.

3. That their average expectation of life at entry being 27.2 years, their actual survival was on an average 28.2 years.

If, however, we desire to learn the true influence of the professoriate on longevity, four lives should be withdrawn of men whose constitution and health at entry were, to my knowledge, so much under par that no Assurance Company would have accepted them as average lives. Deducting 27 years for the sum of their conjunct survival, and 113 for their conjunct expectation of life, the remaining 74 members survived on an average 28 years, while their average expectation term was 25.7 years.

4. That the position of professor in our University is eminently favourable to the longevity of those who enter upon it in early life. Of ten who entered between their twenty-fifth and thirtieth years, the average survival has been 40.5 years against 33.3 years, their average expectation; and of eight who

entered not later than their twenty-fifth year, the average expectation-term was 37 years, their average survival 47. If there be added to the last denomination my own case, the only possible addition belonging to the present membership and to the same category, the expectation-term remains the same; but the average actual survival of nine lives becomes 48.2, and the average age is 70.

It may be deduced from this scrutiny that there is nothing abstractly inimical to longevity in severe mental exercise and occasional protracted mental strain. The facts mentioned in the last paragraph go far to show that, when begun in early manhood, steady, severe mental exercise is even favourable to longevity in a remarkable degree.

Still more remarkable is the longevity of our Principals. In the University of Edinburgh Dr Robertson died at 72, after 31 years' service; Baird died at 79, after 46 years' service; Lee died at 79, after 31 years' service; Sir D. Brewster died at 86, after 9 years of service, his age at entry having been no less than 77.

For greater security, I have obtained the ages at entry and death of all the Principals of the four Universities of Scotland who have died since 1820—fourteen in number—as follows:—

Universities.	Principals.	Age at Entry.	Age at Death.	Survival.	Life Expectation.
Edinburgh . . .	Baird	32	79	47	32
,, . . .	Lee	57	79	22	15
,, . . .	Brewster[1] . . .	56	86	30	16
Glasgow . . .	Taylor	59	79	20	14
,, . . .	Macfarlane . . .	51	86	35	19
,, . . .	Barclay . . .	65	80	15	11
Aberdeen . . .	Jack	31	85	54	32
,, . . .	Brown	38	75	37	28
,, . . .	Dewar	49	84	35	20
,, . . .	Campbell . . .	45	66	21	23
St Andrews . . .	Nicoll	49	65	16	20
,, . . .	Haldane . . .	49	83	34	20
,, . . .	Hunter	89	91	2	2
,, . . .	Forbes	50	59	9	20
		720	1097	377	272

[1] Principal at St Andrews before being at Edinburgh.

Hence the average age of the fourteen Principals was 50 at entry on office, 78.35 at death; their average survival was 28.0, while their expectation of life, according to the most approved tables, was only 19.43; and consequently they survived their expectation-term, one with another, 8.57 years—that is, 44.1 per cent.

But one of the fourteen, James Forbes, was an uninsurable life when he entered on office; for, indeed, he was transferred from the laborious post of Professor of Natural Philosophy in Edinburgh to the light duties of a St Andrews Principal, on account of his irretrievably broken health. Deducting his case, the remaining thirteen attained on an average very nearly the age of 80 (79.84); their survival was 28.3 years instead of 19.40, their expectation-term, and consequently they outlived that term by 8.9 years, or 46 per cent.

As for James Forbes—having been for many years his physician, I knew his health and constitution; and I am sure that no Assurance Company would have conceded to him, at entry as Principal, more than five years of probable survival. Nevertheless he survived nine years—an advantage to be ascribed, not without justice, to the moderate business, gentle cares, and agreeable occupations of the principality of a small university like that of St Andrews.

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